

Romeo Malette Forest Independent Forest Audit 2002-2007



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1.0 Executive Summary

This report, for the Romeo Malette Forest (RMF or the Forest), documents the results of an Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc. (KBM) under contract to the Ontario Ministry of Natural Resources (MNR). All Crown forests in Ontario are required to be audited at least every five years; the requirement for independent audits arising from MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario (2003). Regulation 160/04 of the *Crown Forest Sustainability Act* (CFSA) sets out the specific requirements for conducting the audits.

The purpose of the IFA is to:

- Assess compliance with the Forest Management Planning Manual (FMPM) and the CFSA;
- Assess compliance of completed forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in achieving audit criteria and management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and,
- Assess a licensee's compliance with the terms and conditions of its Sustainable Forest Licence (SFL).

The Romeo Malette Forest audit covers the five-year period April 1, 2002 to March 31, 2007 and addresses the following:

- implementation of the 2002-2007 Romeo Malette Forest Forest Management Plan (FMP) from April 1, 2002 through March 31, 2007; and,
- planning and approval of the 2007-2009 Romeo Malette Forest Contingency FMP (CFMP).

Tembec Industries Inc. (Tembec) and MNR Timmins District are the principal auditees. Tembec was granted the SFL for the Romeo Malette Forest in 1994, and administers the Forest from its office in Timmins, Ontario. The Romeo Malette Forest is approximately 629,000 ha in size, near the city of Timmins, Ontario. It is within the Boreal forest region. Tree species composition of the Crown Managed Forest is predominantly black spruce (28%), poplar (12%), birch (11%), and jack pine (8%).

Based on the audit, 29 recommendations were made. Recommendations can arise from audit team observations of material non-conformances, or may be developed to address situations in which the audit team identifies a significant lack of effectiveness in forest management activities.

Recommendations herein are directed to Tembec and MNR under the following guiding principles of the IFA process:

- Public Participation – two recommendations
- Forest Management Planning – ten recommendations
- Plan Implementation – ten recommendations
- Monitoring – two recommendations
- Contractual Obligations – four recommendations

Additionally, a final recommendation regarding licence extension is provided.

The 2002 IFA documented two critical issues that provided the basis for suspending SFL extension. The resulting two critical recommendations from that audit focus on 1. surveys of barren and scattered (B&S), not-sufficiently-regenerated, and depleted areas, and 2. planning and implementation of the re-inventory of the Romeo Malette Forest. In performing the 2007 audit, these critical issues were examined carefully by the audit team, by reviewing related documentation and files, interviewing representatives of Tembec and MNR, and sampling a variety of sites in the field, both on the ground and from the air, to gain an appreciation of the effort and achievement involved in resolving the two critical issues.

With regard to surveys of B&S, not-sufficiently-regenerated, and depleted areas, the audit team found that substantial effort was made to resolve the issue. A total of 60,142 ha were aerial surveyed and an additional 21,134 ha were updated from previous survey reports. Regular free-to-grow (FTG) survey programs were completed in 2002, 2003, 2004, and 2005 with the 2005 Annual Report (AR) Table-14 reporting 15,624.97 ha surveyed to date. All FTG information was updated in the forest resource inventory (FRI) and included in the AR as per the Forest Information Manual (FIM). The B&S and/or depleted area was updated and now stands at 9.3% of the entire productive forest. The audit team found that the work performed resolved the critical recommendation given in the 2002 IFA.

As a result of the 2002 IFA finding that the FRI was deficient, Tembec developed a new FRI during the audit term. The new FRI incorporates a combination of multi-spectral digital ortho-photography and LIDAR technology captured in the fall of 2004 and summer of 2005. Field work was completed simultaneously with image acquisition. MNR completed quality control on field work and interpretation products. The FRI was completed in August 2006 and approved by MNR two months later.

The audit team reviewed the FRI in the office and a sample was viewed in the field from the helicopter. Polygon delineation was found to be impeccable and the precision of base feature placement was much improved. Checked stand descriptions were very good, including the proper identification of minor species such as cedar and balsam poplar. Ecosite typing was included for all forested polygons and LIDAR information greatly enhanced elevation and tree height estimates. The new FRI was found to be state-of-the-art and a Best Practice was given for this work.

One issue arose from this audit that might be interpreted as being critical to the sustainable management of the Romeo Malette Forest. The minimum balance requirement of the Forest Renewal Trust Account for the Forest, as specified in the SFL, was not maintained. Although Tembec offered that silviculture efforts had not been compromised, the trend towards less costly silviculture treatments and increased natural regeneration is cause for concern. Although the fundamental construct of the Forest Renewal Trust was to provide certainty for forest renewal, the financial state of the forest industry requires creativity in dealing with this matter. A recommendation directs Tembec and MNR to resolve the situation.

Other concerns are described in this document and although none are major, considerable focus and effort will be required to properly resolve them over the course of the next five years in preparation for the 2012 IFA of the Romeo Malette Forest. Remedying the concerns tabled through this audit will lead to improvements in the planning, implementation and monitoring of forest management activities.

The audit team concluded that, with the exceptions noted in the audit report, management of the Romeo Malette Forest was in compliance with legislation, regulations and policies and was effective. With the exceptions noted in the report, the Romeo Malette Forest was managed in compliance with the terms of SFL No. 550398 held by Tembec. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team also recommended that the Minister extend the term of the Tembec Sustainable Forest Licence for the Romeo Malette Forest.



Peter Higgelke, R.P.F., M.Sc.F.
Lead Auditor, on behalf of the audit team

2.0 Introduction

This audit report presents the results of the Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc. (KBM) on the Romeo Malette Forest (RMF or the Forest) for the five-year period from April 1, 2002 to March 31, 2007. The audit assesses the implementation of the 2002-2007 Romeo Malette Forest Forest Management Plan (FMP) and the development of the 2007-2009 Romeo Malette Forest Contingency Forest Management Plan (CFMP), including requirements related to the forest management planning process and plan approval.

The Romeo Malette Forest is managed under a Sustainable Forest Licence (SFL) held by Tembec Industries Inc. (hereinafter referred to as "Tembec" or "the Company"). The primary auditees for this IFA include both Tembec and the Timmins District office of the Ministry of Natural Resources (MNR), since these parties are jointly responsible for management of the Romeo Malette Forest. Other auditees include contractors and other branches of MNR to the extent that forest management activities carried out by them are the subject of audit examination.

2.1 Audit Process

2.1.1 Purpose

The Independent Forest Audit Process and Protocol¹ (IFAPP) was developed by MNR to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. Further, the audit process itself is reviewed every five years by an independent body to provide advice to MNR. The IFAPP states that the purpose of an IFA is to:

- Assess compliance with the Forest Management Planning Manual² (FMPM) and the Crown Forest Sustainability Act³ (CFSA);
- Assess compliance of forest activities with the FMPM and the CFSA;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in meeting forest management objectives;
- Assess the effectiveness of any action plans resulting from previous audits; and,
- Assess a licensee's compliance with the terms and conditions of the SFL.

2.1.2 Audit Process Overview

The IFAPP is based on eight guiding principles and contains 152 criteria and 403 procedures, 296 of which apply to the Romeo Malette Forest audit. The audit procedures serve as a framework to provide a structured approach to evaluating whether or not forest management activities meet the requirements governing forestry practices on Crown land in Ontario.

The previous IFA conducted on the RMF was undertaken in 2002⁴. The implementation of the Action Plan based on the recommendations contained in the previous audit was examined during the course of this audit (see Section 3.8.1).

¹ MNR. 2007. Independent Forest Audit Process and Protocol. Queens Printer. 27 pp. + Appendices.

² MNR. 1996. Forest Management Planning Manual for Ontario's Crown Forests. Toronto. Queen's Printer for Ontario. 452 pp.
MNR. 2004. Forest Management Planning Manual for Ontario's Crown Forests. Toronto: Queen's Printer for Ontario. 440 pp.

³ Crown Forest Sustainability Act, 1994, S.O. 1994 c. 25.

⁴ ArborVitae Environmental Services Ltd. 2002. Romeo Malette Forest Independent Forest Audit 1997-2002: Final Report. 76 pp. + Appendices.

The audit process for the Forest consisted of six components:

1. *Audit Plan*⁵: KBM prepared an audit plan that described the schedule of audit activities, audit team members and participants, and auditing methods. The audit plan was submitted to MNR, Tembec, the Forestry Futures Committee (FFC), and the Chair of the Timmins Local Citizens Committee (LCC).
2. *Public Survey*: KBM prepared a one-page public survey that was distributed to all organizations and a random sample of 40% of the individuals listed in the FMP mailing list provided by MNR. It was also sent to all overlapping licensees, contractors, commitment holders and tourist operators. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. A copy of the survey is found in Appendix F.

Notices were placed in the: *Timmins Times* and the *Wawatay* news soliciting public input on forest management activities on the Forest for the period under audit. A copy of the public notification is found in Appendix G.

Eleven responses were received from the public survey mailing. A summary is presented in Appendix E.

3. *Field Site Selection*: The audit team conducted a preliminary site selection prior to meeting with Tembec and MNR staff. Annual Work Schedules (AWSs) and Annual Reports (ARs) were used to ascertain the amount and type of forest operations carried out on the Forest during the course of the audit term. A stratified random sample of sites was then selected to ensure that selected sites were representative of a cross section of all activities conducted on the Forest during the audit term. A pre-audit meeting was held in Timmins on June 28, 2007. Much of the pre-audit was spent working with Tembec and MNR to finalize the preliminary site selection and develop an itinerary for the field portion of the audit.
4. *Pre-audit Document Review*: Prior to the eight-day site visit, the audit team reviewed documents provided by Tembec and MNR, including the:
 - a) 2002-2007 FMP and 2007-2009 CFMP;
 - b) Annual Work Schedules and Annual Reports associated with the above FMPs;
 - c) Conclusions of the 1997-2002 Report of Past Forest Operations (RPFO);
 - d) Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report;
 - e) 2002 Independent Forest Audit Report for the Romeo Malette Forest;
 - f) Action Plan for the 2002 Independent Forest Audit of the Romeo Malette Forest; and,
 - g) Status Report on the Action Plan for the 2002 Independent Forest Audit for the Romeo Malette Forest.
5. *On-Site Audit*: The audit team spent eight days on site conducting the field portion of the audit (August 20 to 27, 2007). The audit team conducted interviews with staff from Tembec and MNR, and with LCC members. In addition, interviews were conducted with representatives of First Nation communities. A closing audit meeting was held in Timmins on August 27, 2007. This meeting provided a forum for the audit team to present and discuss preliminary audit findings with Tembec, MNR, and members of the LCC.

The audit team examined documents, records, and maps at the Tembec and MNR offices, and spent two days in the field examining forestry practices at 19 field sites. Many stops provided the opportunity to audit multiple operations such as harvesting, renewal, road construction, values protection, etc. KBM committed to, and surpassed, a sampling range of between 10 and 25% of key activities and operations conducted on the Forest during the audit term.

⁵ KBM Forestry Consultants Inc. 2007. Romeo Malette Forest Independent Forest Audit Audit Plan. 16 pp. + Appendices.

Table 1 presents the sampling intensity of the field site visits completed on the Forest. The objectives of the field site visits were to confirm that on-the-ground activities were conducted according to the FMPs, conformed to provincial laws, regulations, and guidelines, and were effective.

Table 1. Audit sampling intensity for the Romeo Malette Forest.

Activity	Total Area/Number (2002-2007) ³	Area/Number Sampled	Percent Sampled
Harvest (ha)	16,003	2,697	17
Renewal & Maintenance (ha)	30,535	4,085	13
Free-to-Grow (ha)	16,163	+2,300	14
Area of Concern Categories ¹ (#)	17	13	74
Road Construction (km)	39	8	21
Road Maintenance (km)	1,139	150	13
Specified Procedures Review ² (ha)	9,544	+1,600	17

¹ Area of Concern (AOC) categories refer to the different types of AOCs present on the Romeo Malette Forest. Examples would include riparian reserves, cool water fisheries, osprey nests, etc. More than one AOC was associated with most sites selected for review of harvest and renewal operations. In addition, some sites were specifically selected to represent a cross-section of AOCs.

² The Specified Procedures Review involved the verification of maps, records, and fieldwork associated with Forest Renewal Trust Account expenditures for 2005-2006.

³ The amount of area for the 2006-2007 year has been estimated from the average annual value of the previous four years.

A sample of all key forest management activities was examined on the ground. Due to the large size of the Forest and access constraints, the audit team relied on a helicopter to reach a number of the field sites. Figure 1 presents the locations of the field sites. A closing audit meeting was held in Timmins on August 27, 2007. This meeting provided a forum for the audit team to present and discuss preliminary audit findings with Tembec, MNR, and members of the LCC.

6. *Final Report:* The audit results are presented following a brief description of the audit process and the forest licence area under review. Within the report, an important distinction is made between recommendations and suggestions. Recommendations draw attention to deficiencies in management that require corrective action. In most cases, recommendations are a result of non-conformance to a law and/or policy, or specify a lack of effectiveness in forest management activities. Recommendations arising from this audit must be addressed in an action plan developed by Tembec in consultation with the MNR District Manager and designated Regional and Forest Management Branch representatives, as per Appendix E of the IFAPP. Suggestions are less serious in nature, and provide advice for improving particular aspects of forest management. The auditee is not required to address suggestions in the action plan, but is encouraged to do so by the IFAPP. A Best Practice highlights an exceptional management practice or high level of performance noted on the Forest.

2.1.3 The Audit Team

The audit was carried out by an independent audit team assembled by KBM Forestry Consultants Inc. under contract with MNR. The audit team consisted of six members:

- Peter Higgelke, R.P.F., Lead Auditor
- Gabriele Aleksa, R.P.F., Silviculture Auditor
- Brad Chaulk, R.P.F., Harvest Operations Auditor
- Keith Hautala, Forest Modeling (SFMM) Auditor
- John McNicol, Wildlife/Ecology Auditor
- Ben Newman, R.P.F., Planning and First Nations Auditor

Audit team members and their responsibilities are described in Appendix B.

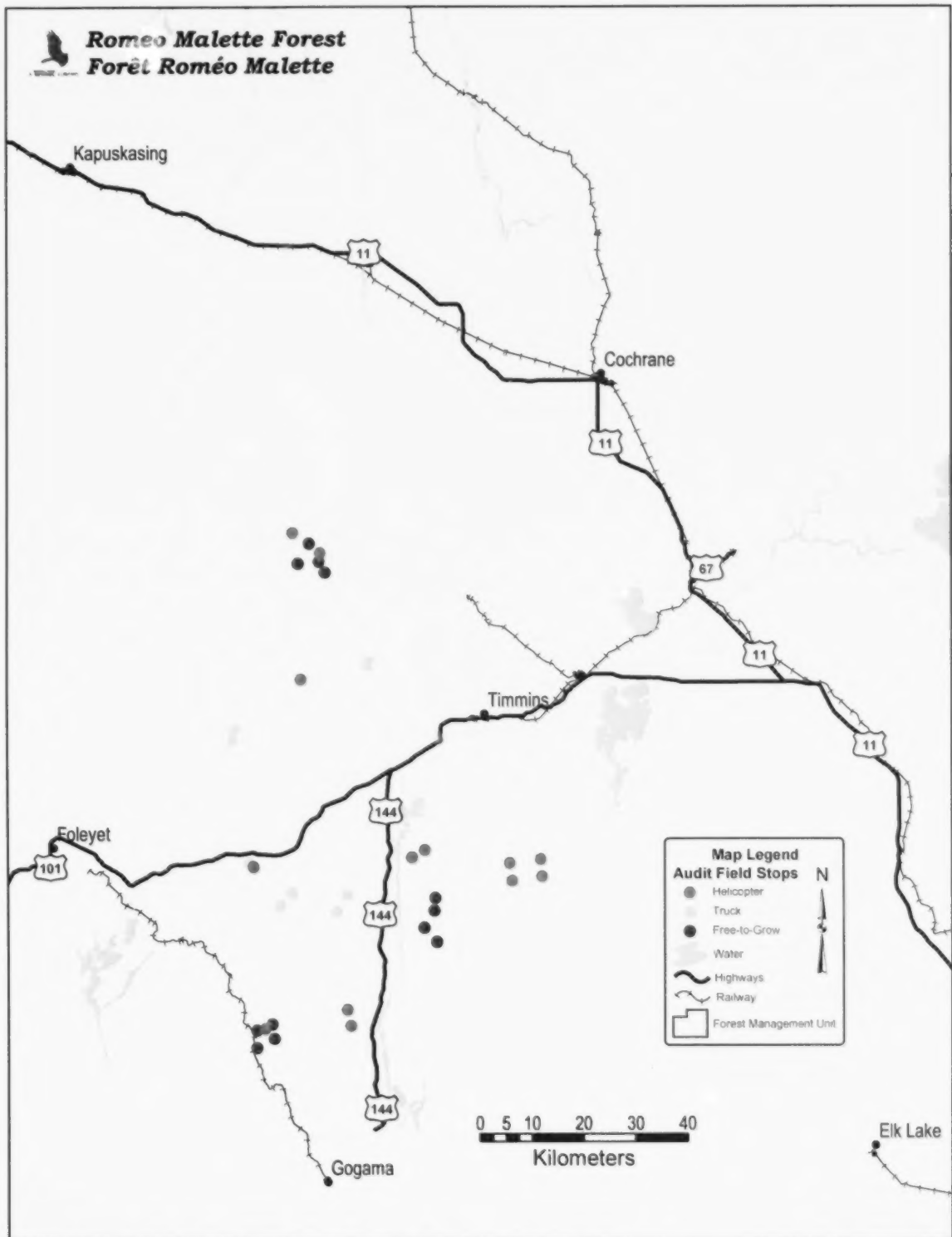


Figure 1. Romeo Malette Forest audit field site locations. (Source: Tembec)

2.1.4 Guiding Principles

The IFAPP identifies the components of the audit process. The audit protocol is the main body of the audit and consists of principles, criteria, and procedures. There are eight guiding principles within the audit protocol (Appendix C). Each principle contains criteria that guide the audit team during its assessment of the auditees' performance. Under each criterion a number of procedures serve to assess the auditees' compliance and effectiveness. KBM assigns each of the applicable procedures to an auditor, who in turn examines the evidence for conformity to the procedure. The eight guiding principles of IFAs are:

- Commitment
- Public Participation
- Forest Management Planning
- Plan Implementation
- Systems Support
- Monitoring
- Achievement of Management Objectives and Forest Sustainability
- Contractual Obligations

According to the 2007 IFAPP, "*The Commitment principle and the Human Resources criteria of the System Support Services principle will be considered to be met if the Forest is certified to one of the three accepted certification standards...*" and "*The Forest will therefore not require an audit of these principles and associated criteria as part of their IFA.*" The IFAPP also explains that the international Forest Stewardship Council (FSC) Principles and Criteria for Forest Management is one of the accepted certification standards. Tembec Forest Industries Inc. has received FSC certification for its work on the Romeo Malette Forest (FSC Certification Code: SW-FM/COC-1366, November 18, 2004). Consequently, the audit team did not audit these principles and associated criteria.

The 2007 IFAPP also described different categories of audit procedures as: (A) administrative only, (X) administrative but also have a bearing on sustainable forest management (SFM), and (S) those directly related to SFM. The 2007 IFAPP directed audit firms to audit 50% rather than 100% of the administrative procedures per Audit Principle and associated criteria. The selection of these administrative procedures was left to the auditors using generally accepted auditing industry standards to guide their approach to randomness, risk factors and specific audit concerns. Appendix A of the Audit Plan provides a listing of IFAPP protocols and shows which were not included the 2007 IFA of the Romeo Malette Forest.

2.2 Forest Management Context

2.2.1 Location of the Romeo Malette Forest

The Romeo Malette Forest is located in the MNR Northeast Region and lies within the Timmins District (Figure 2). The Forest extends westward from Timmins toward Foleyet, and southward toward Gogama.

2.2.2 Romeo Malette Forest Overview

The following description of the Forest is based primarily on material included in the 2007-2009 Contingency Forest Management Plan for the Romeo Malette Forest.

The Romeo Malette Forest is licensed to Tembec Industries Inc. and is managed from the Tembec office in Timmins, Ontario. Originally formed in 1983, the RMF has undergone two significant expansions and presently encompasses a landbase of 628,958 ha. The Crown Managed portion of the RMF consists of 474,772 hectares of productive forested land. The Forest is accessed via Highways #101, #576 and #144. The Flying Post Reserve (uninhabited) is located along the western boundary of the forest, and the Mattagami Indian Reserve is located along its southern boundary.

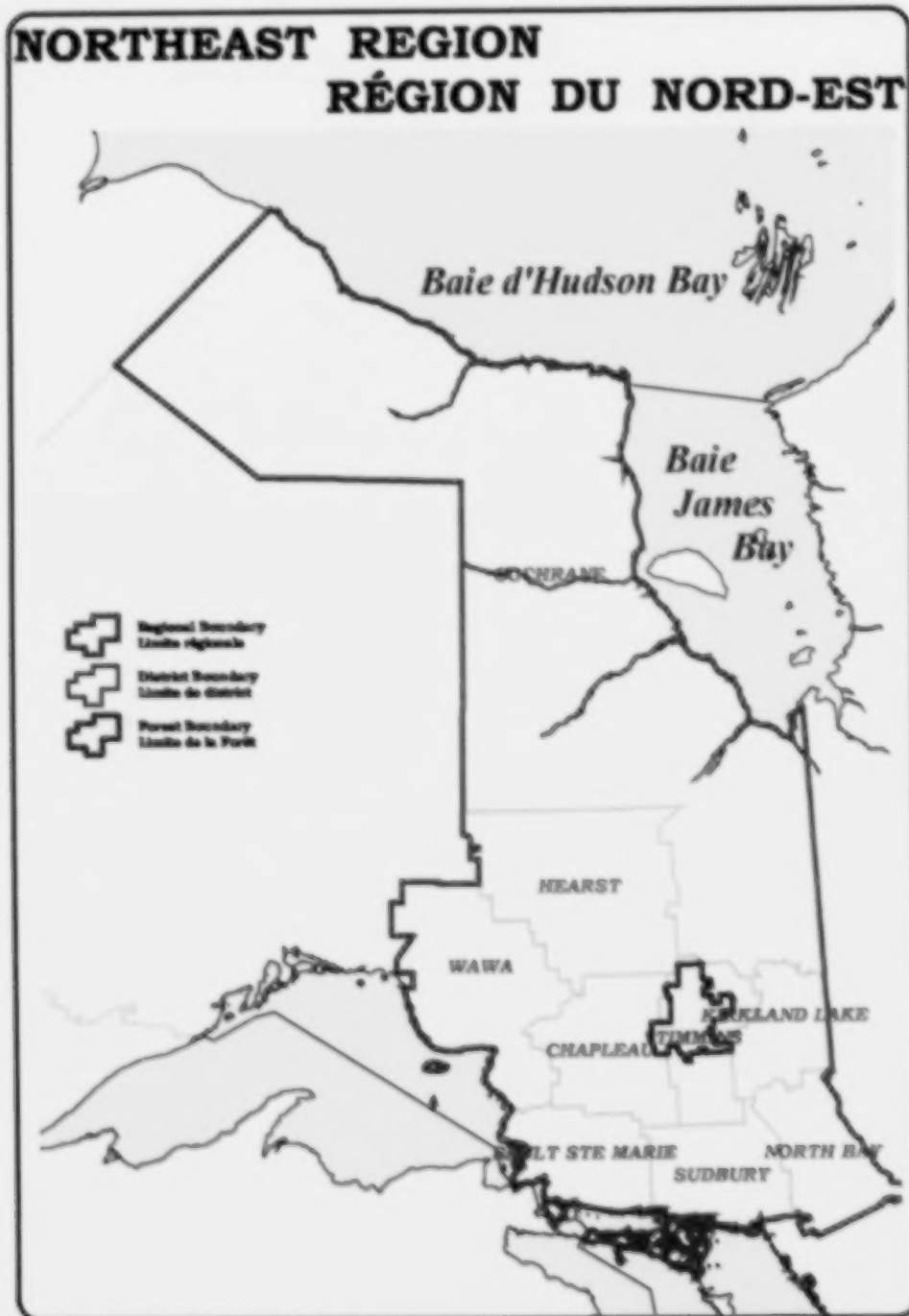


Figure 2. Location of the Romeo Malette Forest (in green) within the MNR Northeast Region. (Source: Tembec)

Although the forest industry is a major contributor to the economy of Timmins, the city has a relatively diverse economic base. Timmins has an approximate population of 47,500 people. Located within or adjacent to the city are various types of wood processing facilities and a variety of other major industries, such as mining, which provides major employment opportunities. Because of the presence of other major employers, the city would be less sensitive to changes in the flow of wood and the effects on local mills than other communities in the north.

The Forest lies wholly within the Boreal Forest Region, with one third in the Northern Clay Belt Section and two thirds in the Misinabi-Cabonga Section. The Clay Belt portion is dominated by large stands of black spruce which cover the poorly drained lowlands as well as gently rising upland areas. In general, the Forest is characterized by the absence of exposed bedrock, extensive poorly drained flat areas, relatively few lakes, and clay-banked sluggish streams. Winter harvesting on frozen ground is used in this part of the Forest. The Central Transitional Section comprises the remaining area of the RMF, with stands that are generally more mixed and variable in size. The topography is moderately rolling with occasional ridges, and drainage is generally good.

The RMF has a landbase of 628,958 ha, of which the Crown Managed portion consists of 474,772 ha of productive forested land, 50,364 ha of unproductive forested land and 48,945 ha of non-forested land. Black spruce (28%), poplar (12%), birch (11%) and jack pine (8%) are the major tree species. Balsam fir, cedar, white spruce, and tamarack are also found in lesser amounts. Tree species that are normally associated with the Great Lakes-St. Lawrence region - red pine, white pine, red maple, and yellow birch - are found on very rare occasions, and only in the south end of the Forest.

In pre-settlement times, the Forest was part of a fire-driven ecosystem. As such, fire controlled the age-class distribution, favouring the dominance of young regenerating stands, with fewer mature and old stands. As a result of fire suppression, the frequency and size of forest fires has decreased. Further, the addition of townships in the northern part of the Forest, which is dominated by mature black spruce stands, has increased the mature forest component by limiting both fire and forestry operations. As a result of these combined factors, over 60% of the forest is currently mature or over-mature.

The RMF supports a diverse array of birds, mammals, amphibians and reptiles as well as countless other species of invertebrates, plants and other life forms. Mammals of economic importance commonly found on the Forest include moose, black bear, marten, beaver, lynx, wolf, red fox, ~~mink~~, otter, and muskrat. Forest management planning has included consideration of moose and marten as featured species, 17 other wildlife species as selected species, and protection of known habitat values for a variety of other species (e.g. osprey nests and great blue heron nests).

During the Lands for Life⁶ process nine areas within the Romeo Malette Forest were identified and set aside as newly protected areas. The Groundhog River has been designated as a Waterway Provincial Park. Dana-Jowsey Provincial Park was also expanded during the Lands for Life process. The Grassy River, Mond Lake Lowlands and Ferris Lake Uplands were also designated as Nature Reserve Provincial Parks. An additional six areas were identified as new Conservation Reserves.

Outdoor activities such as hunting, fishing, trapping, camping, canoeing and snowmobiling are important recreational uses of the Forest. All of these activities benefit local suppliers of outdoor recreation equipment as well as local hotels, motels, restaurants, and businesses. These opportunities also improve the quality of life for local residents. Forest management provides opportunities for recreation by providing access for resource users in the area.

Remote and non-remote tourism is an important business activity and contributor to the local economy in the Timmins area. The Timmins District Land Use Guidelines were developed to ensure protection of tourism values while trying to meet the needs of the forest industry and of people who use the resources of the area for other

⁶ The Ontario government initiated this land use planning exercise which resulted in significant new protected areas throughout Ontario. See Ontario's Living Legacy Land Use Strategy. 1999. Queen's Printer for Ontario.

recreational activities. These guidelines were incorporated into the Crown Land Use Policy Atlas⁷ direction for the area.

2.2.3 Issues Impacting Forest Management

The IFAPP requires a review of high priority aspects (HPAs) of the auditees' systems or activities before the site visits take place. HPAs can include significant management challenges that are inherent to the Forest (e.g. presence of woodland caribou or extensive areas of sensitive soils), or can be specific issues that have arisen during forest management planning or plan implementation (e.g. conflicts with other forest users over proposed forest management activities).

The audit team requested that the auditees compile a list of HPAs for consideration during the audit. The audit team discussed the issues identified in the preliminary list of HPAs further with the auditees and HPA numbers 1 and 2 presented below are a result of those discussions.

Additional HPAs were drawn from the 2002 IFA Report which recommended that the licence not be extended pending the results of an interim audit of two key recommendations. The report described two key recommendations, "...that must be complied with before licence extension (back to 20 years) can occur." HPA numbers three and four relate to these recommendations. The HPAs are as follows:

1. Harvest operations that retain a large number of merchantable, small diameter trees and the impact on renewal.
2. Low white birch utilization and its impacts on renewal strategies, treatments and costs.
3. The results of surveys of barren and scattered, not-sufficiently-regenerated, and depleted areas in order to meet the requirements of Recommendation 2 from the 2002 IFA Report.
4. The planning and implementation of the re-inventory of the Romeo Malette Forest to meet the requirements of Recommendation 3 from the 2002 IFA Report.

The audit team considered the HPAs during the conduct of the audit.

3.0 Summary of Audit Findings

3.1 Commitment

According to the 2007 IFAPP, "*The Commitment principle and the Human Resources criteria of the System Support Services principle will be considered to be met if the Forest is certified to one of the three accepted certification standards...*" and "*The Forest will therefore not require an audit of these principles and associated criteria as part of their IFA.*" The IFAPP also explains that the FSC Principles and Criteria for Forest Management is one of the accepted certification standards. Tembec Forest Industries Inc. has received FSC certification for its work on the Romeo Malette Forest (FSC Certification Code: SW-FM/COC-1366, November 18, 2004). Accordingly, the Commitment principle was not included in this audit.

3.2 Public Participation

3.2.1 Local Citizens Committee

The Timmins LCC was active and effective in addressing its legislated mandate during the audit term. A total of 14 meetings were documented since the initiation of planning for the 2007-2009 CFMP in March 2005. Everyone interviewed indicated that sufficient resources were available, and that MNR and Tembec supported the LCC with relevant background information. Advice offered by the LCC was considered by the District Manager and planning team.

⁷ <http://crownlanduseatlas.mnr.gov.on.ca/>

The LCC membership and responsibilities were reviewed as per the 2004 FMPM requirements. This is documented in the October 20, 2005 planning team minutes. The stakeholder representation reflects the new requirements. However, the FMPM requires documentation of the names and affiliations of LCC members, as well as additional items relating to the purpose and role of the LCC. While the LCC functions as per the new requirements, this is not captured in the June 14, 2004 Terms of Reference. An update is therefore needed, as identified in the following recommendation.

Recommendation 1: MNR must update the Timmins LCC Terms of Reference to comply with the FMPM.

The LCC had a Chairperson, separate from the planning team representatives for the Romeo Malette and Nighthawk Forests (this LCC participates on two forests). Attendance by these individuals was very good.

The LCC report was included in the 2007-2009 CFMP. The report was thorough in its discussion of the issues identified by the LCC as relating to the plan. There was one inconsistency noted by the audit team, which was symptomatic of one concern raised by LCC members. The LCC report identifies that the LCC believed the Grassy River Trail would receive a visual buffer from the aesthetic impacts of harvesting. The prescriptions in the 2002-2007 FMP and 2007-2009 CFMP, and implementation of operations in the field did not include visual buffers. The issue is further discussed in this report under AOC Planning in Section 3.3.7 and Plan Implementation in Section 3.4.1. The audit team concludes that the resolution of certain issues did not proceed at a pace that met LCC expectations. This undermines LCC input and threatens LCC membership and participation. In the case of the Grassy River Trail, it was difficult for MNR and Tembec to find a larger stakeholder group to claim use of the trail, but an updated prescription was eventually developed.

The audit team noted many positive aspects of the LCC. As noted above, the LCC participates on two forests - the RMF and the Nighthawk Forest. While this creates extra work, it also allows the LCC members to broaden their experience and share knowledge and capacity between the two Forests.

The diversity of stakeholders on the LCC is also a benefit. It allows a cross-pollination of ideas and allows the LCC to expand its scope to discuss issues such as mining and other land uses. Unfortunately, the demanding schedule of FMP production allows little time to address other issues, or to discuss forestry issues such as biodiversity, sustainability, or species populations in greater detail. To its credit, there were no examples of delays attributable to the LCC. In order to maintain this efficiency in addressing FMP issues, the LCC should use task teams to address other significant responsibilities within the scope of its Terms of Reference. Many of the LCC members corroborated this finding and identified that the Terms of Reference mandate includes a reference to "*various natural resource management issues*". The audit team acknowledges the motivation and energy of the members. In order to investigate various natural resource management issues in greater detail, while avoiding potential delays in addressing FMP issues, the audit team offers the following suggestion.

Suggestion 1: The Timmins LCC should consider utilizing task teams, as identified in its Terms of Reference, to address non-FMPM issues or to investigate aspects of forest management in greater detail.

At the end of each LCC meeting, participants would assess their satisfaction with the meeting. This evaluation of meetings shows an innovative approach to ensuring member participation.

3.2.2 FMP Standard Public Consultation Process

2002-2007 FMP

During preparation of the 2002-2007 FMP, Grant Forest Products Inc. (Grant) requested an individual environmental assessment under the Environmental Assessment Act⁸ (bump-up⁹). The request was made due to concerns regarding the available aspen-poplar volume from the Forest.

On May 15, 2002, the Ministry of the Environment (MOE) closed the assessment case based on the agreement between Grant, Tembec, and MNR on a protocol to assess the validity of Grant's concerns (the withdrawal protocol), and based on Grant's official withdrawal of the bump-up request. The withdrawal protocol prescribed two actions:

1. Selection of a Selected Management Alternative (SMA) based on non-spatial analysis by November 1, 2002; and,
2. Spatial analysis of sustainability, re-allocation of harvest area, and amendment approval by April 1, 2004.

The appropriate 1996 FMPM procedures were followed to address the bump-up request. Interviews with Grant, MNR, and Tembec indicated satisfaction with the outcome of the bump-up process and that focus is now on other issues. However, the timing of the withdrawal protocol was not followed. This concerns the audit team for the following reasons:

- additional Crown timber resources (poplar volume) should have been available long before the amendment approval date of March 14, 2006; and,
- effectiveness of a public participation mechanism (the bump-up) was compromised.

As the issue was resolved, no recommendation is provided.

2007-2009 CFMP

In certain instances, public consultation for a CFMP may be abbreviated. The Romeo Malette 2007-2009 CFMP proposal identified a public consultation schedule that met the full requirements of the 2004 FMPM, except for Stage 2. Stage 2 of consultation was not required because the approved strategic direction from the 2002-2007 FMP was carried forward as Long-Term Management Direction for the 2007-2009 CFMP.

All CFMP notices and their timing complied with the 2007-2009 CFMP proposal and FMPM. The MNR-approved plan inspection notice was slightly delayed compared to the CFMP proposal due to a request to the Regional Director for issue resolution. The 2007-2009 CFMP² schedule is further discussed in Section 3.3.1.

The information presented at the Information Centres in Timmins was very detailed. Some LCC members and stakeholders commented on the difficulty of understanding some information due to the extremely technical nature of the material. The Information Centres were well attended by MNR and Tembec staff. Planning team members were able to help explain the presentations and engage the public and stakeholders in discussions.

The issue resolution process was requested on the last day permitted by the FMPM (December 5, 2006). The issue involved harvest, road construction, and herbicide use in the vicinity of tourism lakes (Block 114 - Bromley Lake), as well as herbicide use in the vicinity of habitat as defined by the Species at Risk Act¹⁰ and Fisheries Act¹¹. The Regional Director's response of January 17, 2007 officially closed the case. The audit team's conclusion is that the appropriate issue resolution process was followed.

⁸ Environmental Assessment Act, R.S.O. 1990, c. E. 18.

⁹ Regarding the preparation of the 2002-2007 FMP, the scope of this IFA only includes the conclusion of the bump-up request.

¹⁰ Species at Risk Act, 2002, c. 29.

¹¹ Fisheries Act, R.S., 1985, c. F-14.

Sufficient methods were used to communicate with the public including television ads and newspaper notices in a local daily, weekly, and French publication. Public inquiries were accommodated and the audit team found that adequate responses were provided. A few individuals were not satisfied with the outcome of their efforts, but this was due to issues outside of the scope of the FMP process. In some cases, operational plans were withdrawn when they were found to be contentious. Some of these issues and operating areas will need to be re-considered in greater detail during planning for the 2009-2019 FMP. Overall, public comments were few, but detailed. There were no comments at draft plan, except for a request for issue resolution.

3.2.3 Native Peoples Consultation

Five First Nations or Aboriginal communities were identified to the audit team as having some interest in the Forest. These include Mattagami First Nation, Matachewan First Nation, Wahgoshig First Nation, Taykwa Tagamou Nation, and Flying Post Reserve. Letters were sent and phone calls were made to each in order to determine how they wished to be consulted during the IFA. The audit team was informed by MNR and Tembec that individuals from the Flying Post Reserve actually reside in Nipigon. The representative from this community never responded to inquiries from the audit team, and MNR records indicate that they chose not to participate in the preparation of the CFMP even though they were offered a position on the planning team.

The remainder of the representatives participated in planning team and/or LCC meetings and indicated that they had a good working relationship with MNR and Tembec.

FMP notices were sent to community representatives who then distributed them within the communities. Aboriginal language was not used by MNR as the communities did not require it.

While the Forest Management Native Consultation Process was not used, a draft, customized consultation protocol was developed between MNR and Mattagami First Nation. Neither party could clearly explain why the agreement was never finalized, but the audit team acknowledges the extra effort that was applied. It is evident from the correspondence files and interviews that the parties communicated well even without this formal agreement.

Interviews revealed that Tembec has an effective consultation program. Its region-wide Aboriginal program addresses the fact that some of the Aboriginal communities have an interest in more than one of the Forests managed by Tembec. Economic benefits are realized as a result of the harvesting opportunities afforded to Mattagami First Nation. The goal was to provide cut-to-roadside harvest agreements for 30,000 m³/yr on the Romeo Malette Forest. This created 10-13 jobs for Mattagami First Nation community members during the audit term.

In addition to the consultation required of the CFMP proposal, some of the representatives were involved in additional MNR consultation efforts. These efforts are commendable and illustrate an increased effort in achieving Aboriginal involvement in forest management. Examples include:

- June 10, 2005 information meeting in Timmins
- June 15-17, 2005 MNR's Organizing for Planning training
- November 1, 2005 information meeting in Timmins
- September 11-27, 2006 draft plan presentations to Chief and Council, representatives and community members in Wahgoshig, Mattagami, and Matachewan First Nations

Although the CFMP proposal did not require such, Aboriginal Background Information Reports were prepared for Mattagami and Wahgoshig First Nations, and an abbreviated Report on Protection of Identified Aboriginal Values was prepared for all Aboriginal values. The location and nature of the Aboriginal values were kept confidential by the communities. Wahgoshig, Mattagami, and Matachewan First Nations reviewed the draft plan with the help of Mattagami's geographic information system (GIS) technician in order to ensure that operations did not infringe upon their values.

Taykwa Tagamou Nation had no complaints about planning or operations on the Forest. Interviews with the community representative indicated that the dispersed nature of community members, from Moosonee to Chapleau, made values identification difficult. The representative was concerned with the planning system as a whole and hoped that MNR could develop a system for consulting among multiple Districts. This would allow consideration of traditional areas as a whole. Taykwa Tagamou Nation has harvest opportunities on other Tembec forests in the region, but the Romeo Malette Forest is too far removed from the main community, which is near Cochrane.

While much of the work with Aboriginal communities on this Forest is good, an opportunity for improvement between MNR and Tembec was identified by the audit team. Certain representatives of the Aboriginal communities expressed confusion over MNR and Tembec's separate efforts to consult with them regarding the same issue. This is an outcome of the fact that Tembec often consults on a region-wide scale, while MNR often consults on an FMP or management unit scale. Both styles are reasonable, but the Aboriginal communities indicated that they would prefer to discuss their traditional areas as a whole, regardless of administrative boundaries.

Both organizations are committed to Aboriginal consultation; MNR is committed through the CFSA, and Tembec is committed through its FSC certification. Both recognize the FMP process. In order to combine the two organizations' well-intended motivation into a single, effective effort, the audit team makes the following suggestion.

Suggestion 2: MNR and Tembec should recognize each other's legal and other commitments and prepare a joint strategy to address the existing Aboriginal consultation efforts of both organizations.

In making the above suggestion, it is recognized that both MNR and Tembec, as individual organizations, met their commitments and legal requirements with respect to Aboriginal peoples' consultation. The premise to acting on the suggestion is for Tembec and MNR to move past their individual positions and learn about one another's motivation and values regarding Aboriginal consultation.

3.2.4 Annual Work Schedules Public Inspection

Notices of approved AWSs included all required information. However, a confirmation of the date of notice was not available for each year.

Suggestion 3: MNR should maintain records to indicate the actual date of AWS notice appearance in print media.

Aerial herbicide notices were posted as required. It was noted that the 2005-2006 submission did not include a map as required under the phase-in provisions of the 2004 FMPM. This was rectified in the 2006-2007 AWS but the map did not contain any detail to allow for the identification of the location of the intended aerial herbicide project, as is required by the FMPM. The map measured 2.5 by 2.5 inches and showed the SFL boundary, a few of the larger lakes and main roads. The audit team noted that posting a map sufficient to identify actual operating areas would be prohibitive from a cost and benefit stand point; however this is a FMPM requirement. Other MNR Districts have used stars or other identifiers on similar sized maps; another option would be to refer in the notice to a web-based map product sufficient for identifying operating areas.

Recommendation 2: MNR must ensure that annual spray notices contain sufficient detail to allow for identification of the location of the planned aerial herbicide project.

3.3 Forest Management Planning

3.3.1 Planning Team Activities

The need for a 2007 contingency plan was well documented in the CFMP proposal. The rationale focused on the extended timelines required to produce a new Forest Resource Inventory (FRI) that would allow better planning and implementation. The inventory would address some of the critical recommendations from the past IFA. Many of the staff, LCC members, members of the public, and stakeholders interviewed were supportive of the decision to produce a CFMP, and the audit team agrees that it was an effective mechanism.

The 2007-2009 CFMP planning team functioned well. It had adequate representation and members brought sufficient local knowledge and experience to the table. A past recommendation to include Grant on the planning team was addressed when the hardwood users on the Forest (Grant, Columbia Forest Products, and Norbord Industries Inc.) decided on a single person to represent them. The District Manager appointed this individual as required.

Tembec's Planning Superintendent was the plan author. The MNR Area Supervisor was the co-chair and project manager. A steering committee was identified, but not used.

The Terms of Reference were not approved by the Regional Director until February 6, 2006. This is partially explained by the delay in distributing the document to the long list of contributors and advisors for their signatures. It is clear from interviews and the minutes of planning team meetings that the draft Terms of Reference was available in June 2005, before the Invitation to Participate and about the time that consultation began with Aboriginal communities and remote based tourism operators.

Numerous planning team members echoed the strategy of using the 2007-2009 CFMP as an adaptive planning process, working toward the 2009-2019 FMP. The coordination of such a large planning team was facilitated by the use of 11 task teams.

Aside from delays resulting from the issue resolution request of December 5, 2006, the planning team met its timelines as identified in the Terms of Reference. The timelines allowed for extra time because an individual environmental assessment did not need to be accommodated.

Sufficient methods were used to communicate with the public, as discussed previously in this report.

3.3.2 Resource Stewardship Agreements

Tembec initiated contact with resource-based tourist outfitters on September 13, 2005, with letters to 14 different outfitters inviting them to review background information and participate in the development of Resource Stewardship Agreements (RSAs). MNR helped refine the list of licensed resource-based tourism establishments that was initially provided by the Ministry of Tourism and Recreation. Four responses were received by Tembec by November 2005, indicating interest in pursuing RSAs.

Once an indication of interest in pursuing an RSA is received, MNR is to urge the parties to engage in scoping meetings with MNR to ensure the parties are well informed and that MNR is kept apprised of the process. Both MNR and one of the RSA proponents admitted that scoping meetings never occurred, so the following recommendation is made.

Recommendation 3: MNR must encourage RSA proponents to attend scoping meetings with MNR in order to ensure that the proponents receive sufficient background information.

One RSA was developed and signed. No prescriptions were included in the RSA as the proponent did not request any.

3.3.3 Source of Direction

The sources of direction guide the planning team and operators in determining the requirements to be considered during FMP and AWS production and implementation. For the 2007-2009 CFMP, the planning team updated the sources of direction from the 2002-2007 FMP to comply with current requirements. Examples of updates include:

- Forest Management Guide for Natural Disturbance Pattern Emulation¹² (NDPEG), 2001
- Forest Resource Assessment Policy¹³, 2003
- Old Growth Policy for Ontario's Crown Forests¹⁴, 2003
- Silviculture Guide to Managing Spruce, Fir, Birch and Aspen Mixedwoods in Ontario's Boreal Forest¹⁵, May 2003

A comprehensive list was provided in the 2007-2009 CFMP in Section 2.3.2.1 and Appendix 30. Except where noted in this report, the appropriate sources of direction were considered and implemented during the audit term.

3.3.4 Introduction

Planning teams are required to include a description of how MNR's Statement of Environmental Values¹⁶ (SEV) was considered in the development of the forest management plan in the form of an SEV briefing note. The briefing note met requirements and was appended to the 2007-2009 CFMP.

3.3.5 Management Unit Description

The 2002-2007 FMP and the 2007-2009 CFMP included complete and thorough descriptions of geology, soils and sites. An outline of the soils relative to the geological deposits in different areas of the Forest and the tree species found on those sites was provided. Climate, site region and the site districts 3E5, 3E3 were described. Site types based on the Forest Ecosystem Classification (FEC) were used. The eco-region and eco-districts were also described. The implications of the geology, soils and sites on forest management practices and decisions in the plan including the silvicultural ground rules were outlined.

The historic forest condition was explained including the implications for future management. The fire disturbance history of the area and the effects on the age-class distribution of the forest units were discussed. At the time of the 2002-2007 and 2007-2009 plans, it was estimated that over 60% of the Forest was mature and over-mature, partly as a result of fire suppression. The plans also discussed the past harvesting of small blocks that caused fragmentation, and affected the emulation of patterns of natural disturbances. The historic presence of white pine and the need for more intensive management of this species was also discussed.

As a result of the 2002 IFA finding that the RMF FRI was deficient, Tembec developed a new FRI during the audit term. A delay in corporate approval to complete the new FRI led to the decision to develop a two-year contingency plan for the 2007-2009 term. This permitted proper completion of the new FRI for use in the 2009-2019 FMP.

The audit team reviewed the new FRI which incorporates a combination of multi-spectral digital ortho-photography and LIDAR technology captured in the fall of 2004 and summer of 2005. Field work was completed simultaneously with image acquisition. MNR completed quality control on field work and interpretation products. The FRI was completed in August 2006 and approved by MNR two months later. Subsequently, the planning

¹² MNR. 2001. Forest Management Guide for Natural Disturbance Pattern Emulation, Version 3.1. Ont. Min. Nat. Res., Queen's Printer for Ontario. 40 pp.

¹³ MNR. 2003. Forest Resource Assessment Policy, Version 2. Ont. Min. Nat. Res., Queen's Printer for Ontario, Toronto. 40 pp.

¹⁴ MNR. 2003. Old Growth Policy for Ontario's Crown Forests, Version 1. Ont. Min. Nat. Res., Queen's Printer for Ontario. 26 pp.

¹⁵ MNR. 2003. Silviculture Guide to Managing Spruce, Fir, Birch and Aspen Mixedwoods in Ontario's Boreal Forest. Version 1.0. Ont. Min. Nat. Res., Queen's Printer for Ontario. 382 pp.

¹⁶ MNR. 1995. Statement of Environmental Values for the Ministry of Natural Resources. <http://www.ebr.gov.on.ca/ERS-WEB-External/content/index2.jsp?fo=statement.ministry.natural.resources&f1=aboutTheRegistry.statement.value>

inventory for the development of the 2009-2019 FMP, which included the new FRI, was approved for use in February 2007.

As the FRI was identified as a major failing in the 2002 IFA, extra scrutiny of the new inventory was afforded in this audit. The FRI was reviewed in the office and a sample was viewed in the field from a helicopter. Polygon delineation was found to be impeccable and the precision of base feature placement was much improved. Checked stand descriptions were very good, including the proper identification of minor species such as cedar and balsam poplar. Ecosite typing was included for all forested polygons and LIDAR information greatly enhanced elevation and tree height estimates. In summary, the new FRI is state-of-the-art and will vastly improve strategic and operational planning in the 2009-2019 FMP. Tembec has done an admirable job of updating the inventory of the RMF and is commended for its efforts.

Best Practice 1: Tembec produced a state-of-the-art inventory that will vastly improve strategic and operational planning on the Romeo Malette Forest.

The 2007-2009 CFMP contains the strategic direction from the 2002-2007 FMP, including all parameters and components. The planning inventory for the CFMP was based on the old FRI updated as required, with revised values and ownership information from MNR and taking into account accruals and depletions to plan start. The retention of strategic material from the 2002-2007 FMP conforms to the contingency plan proposal and the 2004 FMPM. However, the planning inventory also included some available updates from the new FRI including reclassification of some of the backlog areas. This increased the eligible area from the 2002-2007 FMP by about 10,000 ha. As a result, some components of the strategic direction in the CFMP are slightly different than that used in the 2002-2007 FMP; this does not strictly follow the contingency plan proposal and is otherwise not well documented in the CFMP. The CFMP is fully discussed in Section 3.3.10.

The 2007-2009 CFMP describes 20 wildlife species on the Forest and the habitats that support them. The plan provides the current non-spatial habitat status of the 20 wildlife species. Table FMP-5 from the 2002-2007 FMP (Appendix 33) describes the current preferred habitat status for selected and featured wildlife species found within the context of provincial, regional, sub-regional and management unit representation.

Significant changes in the area of habitat for selected and featured wildlife species could not be discussed in the 2002-2007 FMP as this information was not quantified in previous plans. Since no new Strategic Forest Management Model (SFMM) runs were completed for the 2007-2009 CFMP, no changes in habitat area for these particular species could be discussed. According to the 2002-2007 FMP, 50% of the selected and featured species experience a habitat reduction (6%-58%), at least in a seasonal component, under the selected management alternative at the desired future forest condition. None of these reductions, however, allow the habitat area for these species to fall below the -20% level of the bounds of natural variation as given by the SFMM null (no management) run, which is the arbitrary minimum level recommended by MNR at the time.

A spatial analysis of habitat for the American marten was conducted in conjunction with the 2002-2007 FMP in order to provide the planning team with an idea of where the current core habitat for these provincially featured species was and how the core areas would change over time with forest management. Ten core areas of suitable sizes, many partially within Ontario's Living Legacy¹⁷ (OLL) and Park areas, were identified on the Forest with the total suitable habitat within the core areas at 54,669 ha, which is 11.8 % (the Forest Management Guideline for the Provision of Marten Habitat¹⁸ suggests 10%-20%). Total suitable marten core area habitat and guideline suitable core area habitat are projected to increase by 77.5% and 90.2% respectively, for the 2021-2040 planning period. The audit team believes the approach taken for the management of marten habitat on the Romeo Malette Forest is satisfactory.

¹⁷ MNR. 1999. Ontario's Living Legacy Land Use Strategy. Ont. Min. Nat. Res. Queen's Printer for Ontario. 34 pp. + Appendix.

¹⁸ MNR. May 1996. Forest Management Guideline for the Provision of Marten Habitat. Version 1.0. Ont. Min. Nat. Res., Queen's Printer for Ontario. 20 pp. + Appendices.

Potential cultural heritage values are usually identified through the use of a model (the Heritage Assessment Tool) which uses information on soils, topography and waterways to predict where cultural heritage values may exist. The results from the model run are then checked in cooperation with a cultural heritage specialist for any identified areas that appear to be anomalies (e.g. a landlocked small water body) and this corrected product is then used in planning. The model was not used for the 2002-2007 FMP as it was unavailable; instead the areas proposed for allocation were reviewed by a cultural heritage specialist who identified the sites which had cultural heritage value potential.

The Heritage Assessment Tool was used for the 2007-2009 CFMP. Areas identified as having high potential for heritage values were reviewed by First Nations within whose traditional areas these areas had been identified. The First Nations involved accepted all areas identified as having high potential for cultural heritage values even though some of the areas appeared to be anomalies. Planning proceeded based on this version of high potential cultural heritage values.

As per the CFMP proposal, the socio-economic profile used in the production of the 2007-2009 CFMP was the same as the 2002-2007 FMP (Appendices 7 and 8). It was derived from Statistics Canada information. The profile met the requirements of the 1996 FMPM under which it was written. The socio-economic profile identified that the forestry sector is a significant economic contributor to the local economy, along with other industries such as mining.

3.3.6 Objectives and Strategies/Management Alternatives

As per the direction in the FMPM, the 2007-2009 CFMP planned operations in a manner consistent with the strategic direction from the approved 2002-2007 FMP. As such, the CFMP carried forward the objectives, strategies, and targets of the previous FMP. Some strategies were prudently updated to reflect new policy direction, such as the NDPEG and RSAs.

Given the continuation in strategic direction, no new forest modeling occurred in terms of analysis of management alternatives or alterations to forest model inputs for the 2007-2009 CFMP. The 2002 IFA reviewed the 2002-2007 FMP and its associated modeling and, as a result, no new findings are present in this review.

Due to the 2007-2009 CFMP containing no revision to the forest model, some outstanding recommendations from the 2002 IFA remain to be addressed. These include recommendations to review both natural disturbance rates and growth and yield estimates used in the forest model. New information on fire cycle rates and new yield curves leveraging permanent sample plot data are expected to be incorporated into the 2009-2019 FMP currently under development. To ensure that the relevant recommendations from the 2002 IFA are properly addressed in the development of the 2009-2019 FMP, the following recommendation is made:

Recommendation 4: Tembec must address Recommendations 4 and 15 from the 2002 IFA in the development of the 2009-2019 FMP for the Romeo Malette Forest.

Since the planning team used the strategic direction from the approved 2002-2007 FMP, a formal process of determining desired forest and benefits was not required. The strategic direction also included a socio-economic analysis of the preliminary preferred management alternative using the socio-economic impact model (SEIM).

3.3.7 Operational Planning

Areas of Concern

Area of concern planning begins with the timely identification of values (e.g. eagle nest sites, canoe routes, cultural heritage sites, etc.) in areas proposed for forest management. The collection of values information is MNR's responsibility. New values are entered into the Natural Resource Values Information System (NRVIS) which MNR maintains. A values map is produced from this database which is used to ensure that forest management activities are planned to minimize potential adverse impacts to values where values are located in the vicinity of planned operations.

The 2002 IFA recommended that the stick nest inventory on the Romeo Malette Forest be updated. In March 2005, a stick nest survey was conducted over areas proposed for harvest in the last years of the 2002-2007 FMP. In March 2006, the areas proposed for operations in the 2007-2009 CFMP were surveyed for stick nests. At the same time that these surveys were conducted, previously identified nest sites in the vicinity were checked to see if they still existed.

Other values surveys that took place in preparation for the 2007-2009 CFMP included:

- A moose aquatic feeding area (MAFA) survey conducted in July 2005 covering the 2007-2009 CFMP area.
- A survey in late September 2005 to identify stands of rare trees on the Romeo Malette Forest.

The collection of Aboriginal values for the 2007-2009 CFMP involved two major initiatives: first, memoranda of understanding were signed between MNR and Mattagami and Matchewan First Nations for the collection of Aboriginal values, the creation of background information reports, and reports on the protection of identified Aboriginal values; and second, the planning team participation of representatives of four of the five First Nations whose traditional areas were affected by the CFMP. Representatives of the Mattagami, Matachewan, Taykwa Tagamou and Wahgoshig First Nations, as planning team members, were able to review the proposed and draft allocations for areas where they had concerns regarding Aboriginal values (Flying Post Reserve was not represented). Since one of the objectives of contingency planning is to reduce issues, allocations in areas where concerns were expressed by the First Nations representatives were dropped by Tembec.

The audit team believes the direct participation of the affected First Nations on the planning team was a good way to try to ensure the protection of Aboriginal values in the vicinity of proposed operations. Timmins District MNR and Tembec hope that the four First Nations will continue to be represented on the planning team for the 2009-2019 FMP. Should this not happen, however, MNR will need a strategy for the collection and protection of Aboriginal values. Both the 2002-2007 FMP and the 2007-2009 CFMP speak to the development of such a strategy.

Suggestion 4: MNR should develop a strategy for the collection of Aboriginal values for the forest management planning process for the 2009-2019 FMP.

Once new values are identified they must be entered into NRVIS to ensure that MNR's values maps are up-to-date for planning purposes. The audit team checked a number of new and amended values identified by MNR (new bald eagle nest, new MAFAs, deleted stick nests) and Tembec staff (nest sites) and determined that all the values were properly stored in the electronic database. One contentious value (the Grassy River trail) identified by the public towards the end of the 2002-2007 FMP, did not show as a value in NRVIS even though there was an AOC prescription for the trail in the 2007-2009 CFMP. In addition, stands of rare trees identified in the 2005 survey were not in the NRVIS database. The audit team also learned that the values maps that were shown to the public for the 2007-2009 CFMP information centres were not current.

Recommendation 5: MNR must ensure that the values map presented at forest management planning public consultation information centres are current and accurate.

Recommendation 6: MNR must ensure that all AOC prescriptions can be traced back to a value recorded in NRVIS used in the forest management planning process.

Where values which could be adversely affected by forest management activities were identified, specific prescriptions were applied within areas of concern. Where the appropriate guideline provided specific direction (e.g. 120 m reserve adjacent to moose aquatic feeding sites), that direction was included in the prescription. Where specific direction for protection of a value was not included in a guideline (e.g. resource-based tourism lakes) different prescriptions were developed to address site conditions and (where relevant) stakeholder

concerns specific to that value (e.g. the prescription developed for Horwood Lake). Tertiary road restrictions were found in a number of prescriptions (e.g. Horwood Lake, Grassy River Trail, walleye protection lakes, etc.). No prescriptions to protect non-timber values were listed as exceptions to a guideline.

One set of prescriptions was developed for an outfitter's lodge, but this was not documented properly in the FMP. It was never vetted through a public process whereby MNR or other stakeholders were made aware of the road use management strategy. The prescriptions apply to the area near George Lake (Block 74) and specify tertiary road restrictions near the Regen SR-5 junction. The work on the Regen SR-5 roads occurred during the term of the 2002-2007 FMP. While the audit team is pleased that Tembec consulted effectively with local stakeholders, the lack of documentation in the 2002-2007 FMP (Table FMP-26 Roads, Table FMP-17 AOCs, and AOC supplementary documentation) does not meet the requirements of the FMPM. There is no merit to amending the 2002-2007 FMP to address this issue, but the audit team makes the following recommendation.

Recommendation 7: Tembec must ensure that prescriptions developed to protect remote tourism values, or changes to use management strategies for roads or road networks are documented as per the FMPM.

Harvest

While strategic direction from the 2002-2007 FMP was used for the 2007-2009 CFMP, new operational planning was developed for the two years of operations. Operational planning followed requirements of the 2004 FMPM where practical and was thorough in most respects. The two-year available harvest area (AHA) was proportionate to the amended AHA for the 2002-2007 FMP, planned renewal and roads complimented the harvest scenario, and suitable contingency area was identified. No surplus was declared and no salvage was planned for the term.

Documentation in the CFMP regarding selection of areas for harvest, renewal and maintenance was weak. For example, Section 2.3.7 of the CFMP notes that selection criteria are discussed in Section 2.4.2; however, there is no Section 2.4.2 in the CFMP because the new FMPM (with new chapter numbering) is used for the operations portion of the plan. In Section 3.1 of the CFMP, harvest selection criteria are briefly discussed with regards to the use of 2002-2007 FMP contingency blocks as regular allocation area in the contingency plan:

The poplar FMP amendment resulted in the complete or partial use of eight contingency blocks from the 2002-2007 FMP. Some of the contingency blocks also had poor access making them unsuitable for allocation in the 2007-2009 FMP. The Middleboro branch road has been proposed in the 2007-2009 plan to access one of these areas. Some of the contingency blocks did not fall within the target age classes. Other blocks were too small or were isolated blocks making them uneconomical to harvest.

This description does not allow for comparison with direction given by MOE (in the contingency proposal endorsement letter) that the CFMP will include, "...operations from the current FMP...additional areas will be consistent with the long-term strategic direction...and highly contentious areas will not be included in areas selected for operations". The audit team believes that the allocation selected for the 2007-2009 CFMP does not fully follow the direction provided by MOE or the intent of a contingency plan, which is to focus on harvesting areas from the previous term. Of the approximately 2,100 ha of contingency area available from the 2002-2007 FMP, about 100 ha was chosen (less than 5%).

Furthermore, it is unclear that the selected operations fit the long-term strategic direction in the 2007-2009 CFMP. Although it is stated in the CFMP that, "*Harvest areas match, as closely as possible, the projections of forest operations to the levels established by the long-term management direction, in terms of age class*" this did not appear to be the case, as area planned for harvest deviated significantly from the AHA for some age classes. For example, although the 61-80 year AHA was only 106 ha for ten years, the CFMP included 467 ha over only two years in this age class. In addition, the AHA for the 101-120 and 121-140 year age classes totalled approximately 27,000 ha (5,400 ha for the two-year term) but only about 3,300 ha was planned (about 61%).

Selecting younger stands than the model is common in FMPs across Ontario. What is not clear in the 2004 FMPM is how much substitution is considered acceptable. Final modeling runs were used to determine whether selected operations followed the strategic direction for FMPs written according to the 1996 FMPM, but the usefulness of this exercise was dubious as one term of harvest (five years in this vintage of FMPs) will have minimal effect over a 160-year model term. Regardless, the audit team believes that the areas selected for harvest, although not threatening sustainability (mainly because there are only two years worth), do not fully match the strategic direction provided in the CFMP, nor the intent of a contingency plan. This topic is discussed further with a recommendation in Section 3.3.10 of this report.

Section 3.7 of the 2007-2009 CFMP contains a thorough discussion of the monitoring program to be implemented during the two-year term of the contingency plan. All FMPM requirements were met in this respect. Appendix 28 of the CFMP contains a Compliance Strategy for the two-year term of the plan. All components, as required by the Guideline for Forest Industry Compliance Planning¹⁹, are included.

Silviculture

The Silvicultural Ground Rules (SGRs) describe the current and future forest condition, ecosite type, silvicultural treatment package (STP) and regeneration standards for a forest. The STP includes a silvicultural system with a range of acceptable harvest, site preparation, regeneration, and tending methods. Within the SGRs the preferred STP is identified and the remaining STPs for that SGR are ranked in order based on expected frequency of use. The preferred SGR is typically implemented, although one of the alternate SGRs may be substituted. Field site visits showed that the silvicultural treatment packages within the SGRs for the Romeo Malette Forest were complete and suitable to the sites audited.

An exception to the Silvicultural Guide to Managing for Black Spruce, Jack, Pine and Aspen on Boreal Forest Ecosites on Ontario, Book I: Silviculture in Ontario²⁰ was included in the SGRs of the 2002-2007 FMP and the 2007-2009 CFMP. The exception describes commercial thinning in jack pine forest units (Pj 1 and Pj 2). Commercial thinning of jack pine is "not recommended" in the silvicultural guide.

To meet monitoring requirements associated with an exception to the silvicultural guides, a detailed monitoring program was included in the 2002-2007 FMP and 2007-2009 CFMP. The exceptions monitoring program was developed by MNR Northeast Region to allow for comparison of all data collected on various units throughout the northeast region.

In 2003, 37 ha of commercial thinning were completed in Sewell Township. Permanent growth plots were established and measured in both the unharvested area as control plots and in the harvested area as part of the exceptions monitoring plan. This work was completed through the Forestry Research Partnership and the provincial Forest Ecosystem and Science Cooperative of which Tembec is a member. These plots will continue to be measured every five years and are next scheduled for re-measurement in 2008. Tembec has suspended further commercial thinning projects in jack pine on the Romeo Malette Forest due to the high cost and low sawlog yield.

Renewal and tending forecasts were developed to achieve management objectives. The levels of these operations were also consistent with the projected levels for the selected management alternative. The types and levels of planned renewal and tending activities are summarized in Table FMP-25 of the 2002-2007 FMP. According to the 2002-2007 FMP, all of the planned harvest was selected for renewal and tending. As well, areas that were harvested or naturally depleted during the term of the previous forest management plans and have not been successfully regenerated, have been selected as eligible for renewal and tending. Naturally disturbed areas are generally only treated if the site was salvaged (i.e. harvesting operations were conducted).

¹⁹ MNR. 2005. Guideline for Forest Industry Compliance Planning. Ont. Min. Nat. Res., Queen's Printer for Ontario. 17pp.

²⁰ MNR. 1997. Silvicultural Guide to Managing for Black Spruce, Jack Pine and Aspen on Boreal Forest Ecosites in Ontario. Version 1.1. Ont. Min. Nat. Res., Queen's Printer for Ontario, Toronto. 3 books, 822pp.

The total area planned for regeneration in the 2002-2007 FMP was 23,176.33 ha and the total forecasted harvest area was 21,069.39 ha. The forecast for tending was 5,816.20 ha and included aerial chemical and mechanical tending and pre-commercial thinning. Table FMP-21 in the 2007-2009 CFMP shows the area planned for regeneration over two years as 9,262 ha and planned tending as 3,498 ha. The forecasted and planned harvest area is shown in FMP-15 as 8,407 ha.

The necessary renewal support requirements were documented in the 2002-2007 FMP and the 2007-2009 CFMP. The 2002-2007 FMP reported insufficient stock of black spruce seed supply for the Romeo Malette Forest with a plan to collect enough during a good cone year to overcome this shortfall. Planting stock production and the tree improvement operations were also described.

The 2007-2009 CFMP also described the necessary renewal support requirements for the two-year period. It was noted in the plan that there was no white pine seed in storage and only a small amount of red pine seed. There was difficulty in obtaining suitable seed during the last few years while the plan was prepared, and there was concern that it may not be possible to achieve the planned white pine restoration target of 50,000 planted seedlings per year unless an alternate seed source was found.

In 2006, Tembec acquired seed from the Gurd Seed Orchard and had an inventory of 500,000 seeds. This seed originated from the Romeo Malette Forest and is enough to grow 50,000 seedlings per year for a minimum of five years. Planting stock production including container stock requirements, and aerial seeding needs were also described in the 2007-2009 CFMP. Tembec provides financial support to the Northeast Seed Management Association (NESMA) that manages the Ramore Seed Orchard which is outside the Romeo Malette Forest boundaries.

Roads

Road planning for primary roads was consistent with the requirements of the 2004 FMPM. The continuation of the existing Musgrove Main Road included two alternatives and the corresponding analysis. Roads planning complimented the harvest scenario.

3.3.8 Plan Review, Approval

Review and approval of the 2007-2009 CFMP met the requirements of the Terms of Reference and the 2004 FMPM, except for the reasonable deviations noted below. The plan was approved in sufficient time for operations to begin on April 1, 2007.

The draft plan was submitted July 5, 2006. MNR's 60-day review proceeded as required with the Preliminary List of Required Alterations delivered September 1, 2006. Public notices for the Second Information Centre were published on August 9 and August 30, 2006. The public's 60-day review ended November 5, 2006, with no comments except for the ongoing discussion that led to the issue resolution process. Presentations to three Aboriginal communities occurred in September.

The entire Preliminary List of Required Alterations was addressed by the plan author, including the 97 required alterations, 34 comments, 3 editorial alterations, and 10 unclassified alterations. Interviewees concluded that the short list was a result of familiarity with the contents from the previously approved 2002-2007 FMP.

While the CFMP was ready for approval in December, the request for issue resolution delayed the final submission until January 24, 2007. Approval was granted in the first week of February and the final inspection of the MNR approved plan was concluded on March 9, 2007. All the required signatures, certifications, exceptions and endorsements were included.

As a result of issue resolution, Block 114 was withdrawn from the planned harvest and Blocks 5, 7, and 37 were carried forward from the 2002-2007 FMP as Blocks 158-161. These were non-contentious areas that appeared in three AWS submissions. MNR and Tembec received no comments as a result of consultation for the blocks. Letters were sent between December 1 and December 4, 2006, informing the entire FMP mailing list of the

change and the opportunity for comment by December 19, 2006 (consistent with the timing of a minor amendment notice). This still afforded Tembec sufficient time to submit the final plan by January 24, 2007.

3.3.9 Plan Amendments

Amendments to the 2002-2007 FMP were audited. There were 12 administrative, three minor, and three not processed. The consultation requirements were met in each instance of minor amendment. There are no consultation requirements for administrative amendments. Both MNR and Tembec's master lists of amendments were accurate and current. A sample of AWS revisions was audited and found to be consistent with the FMPM requirements for amendments, where applicable.

While the documentation available at both MNR and Tembec was sufficient to explain the rationale and details of each amendment, administrative requirements such as amendment request and approval pages were inconsistent. Tembec has an internal form it uses for requesting amendments. It meets most, but not all, of the 2004 FMPM requirements. An example of a deficiency in the form is a location for the MNR certification and approval, as illustrated in Figures C-1 to C-3 in the FMPM. Likewise, MNR's approvals were often documented as email transmissions or file notes of the date of approval and approvers name and position. All plan amendments categorized by the MNR District Manager after September 1, 2004 were to be prepared in accordance with the 2004 FMPM to the extent reasonably possible. To allow for easier referencing of amendment requests and approvals, the audit team makes the following recommendation.

Recommendation 8: MNR and Tembec must comply with the amendment title, certification and approval page format of the 2004 FMPM.

The audit team analyzed the trends in the rationale for each amendment. This revealed no systemic deficiency in planning or operations. A similar analysis of amendment approval time revealed three outliers that were scrutinized in greater detail. While MNR is to be commended for the fact that most amendments are approved within a short, or at least reasonable, timeframe, three stood out as requiring more than six months to approve (Table 2).

Table 2. Amendment approval time.

	Approval Time (months)					
	<1	1-2	3-6	11	17	41
Number of amendments	4	6	2	1 - Poplar amendment	1 - Tertiary road wording	1 - Flag Lake Road

The audit team already identified concerns with the Poplar amendment (#5), as a result of investigating the bump-up to the 2002-2007 FMP (Section 3.2.2). The spatial analysis of sustainability, re-allocation of area, and amendment approval was to occur by April 1, 2004. The May 5, 2005 submission of the Poplar amendment and March 14, 2006 approval resulted in missing the withdrawal protocol target by more than 23 months. In order to identify any areas for cooperation between Tembec and MNR in improving the amendment approval process, the audit team makes the following suggestion.

Suggestion 5: MNR and Tembec should assess the reasons for the delay in approval of the 2002-2007 FMP amendments #4, 5, and 13.

3.3.10 Contingency Plan

A contingency proposal was completed for the 2007-2009 CFMP on March 11, 2005 and was endorsed by MOE on April 27, 2005. The proposal contains all components required by the 2004 FMPM.

A contingency plan was developed for the 2007-2009 term to allow time for completion of a new FRI for the next FMP. The CFMP was completed and approved on time to allow operations to commence April 1, 2007 and most facets of the document were complete and followed direction in the contingency plan proposal and the FMPM. However, there were a few exceptions. As noted in Section 3.3.7, it is not clear that the contingency proposal or the MOE endorsement directives were adhered to fully. Very little contingency area from the 2002-2007 FMP was used in the CFMP (<5%) and in some cases the areas selected for harvest deviated from the AHA by age class.

Little use of the 2002-2007 FMP contingency area in the CFMP was also noted as an issue by MNR in the Preliminary List of Required Alterations for the Draft CFMP. MNR noted that in both cases it was too late in the process to change allocations but early scrutiny is expected for the 2009-2019 FMP to ensure this does not occur again. In addition, despite completing the required public consultation and dropping some allocations from the draft and final CFMP, the number of issues brought forward by other stakeholders during the development of the CFMP suggests that MOE direction to not include highly contentious areas was not fully appreciated.

The CFMP text did not cover all topics as required. As noted in Section 3.3.7, selection criteria were not fully discussed. In addition, changes to eligibility were not fully discussed in the text. According to Tembec staff, the developing FRI was used to update the eligibility for the CFMP. This resulted in an increase of ~10,000 ha of eligible area when compared to the 2002-2007 FMP (about 4%). Although this is not a large amount, the change in eligibility is significant because it was not detailed in the CFMP. Also, this is a deviation from the 2002-2007 FMP strategic direction that was to be followed in the CFMP as per the contingency proposal.

Tembec and MNR are responsible for ensuring all pertinent information is available for public review during plan development and that all documents are completed as per manuals and other direction. The audit team does not believe that the 2007-2009 CFMP should be altered at this time but, based on the significant deviations noted, makes the following recommendation.

Recommendation 9: Tembec and MNR must ensure that the 2009-2019 FMP contains all required text and that the selected operations fully complement the strategic direction.

3.3.11 Annual Work Schedules

For the most part, AWSs were consistent with the 2002-2007 FMP and contained most of the required components. Some inconsistencies were noted in late vintage AWSs that were corrected in subsequent years. For example, the slash management discussion was updated in 2005-2006 and subsequent AWSs to better reflect actual practices and direction in the 2002-2007 FMP (i.e. not all piles will be burned). Errors in some tables were noted, most apparent was the inclusion of "####" where a figure should be, due to a cell size error. Missing material included Table AWS-5 from one of the AWSs and text regarding stand level residual as required in 2004-2005 and subsequent AWSs. There were also discrepancies found between text, tables and maps. For example, harvest blocks 15, 81 and 82 were not included in the 2004-2005 AWS stand list but were included on AWS Map 10 and Map 11 (harvest composite map). In addition, text regarding proposed harvest blocks failed to include Block 15.

Recommendation 10: Tembec and MNR must ensure that AWSs are complete and accurate.

More substantive issues with the AWSs included:

- a) Selecting excessive harvest area. This was particularly apparent in the 2004-2005 AWS which included approximately three years of allocation to "...allow operational flexibility". AWSs should be a reflection of actual operations scheduled for implementation for the year to allow public notice for those that may be affected. According to the 2004 FMPM, "The annual work schedule lists operations that were previously planned and approved in the forest management plan, and are scheduled for implementation during that year." The audit team acknowledges the need for operational flexibility in AWSs but cautions that these documents are produced mainly to provide the public with advance notice of operations.

Recommendation 11: Tembec must ensure that AWSs contain only those operations that are expected to occur during that year and a reasonable amount of additional area to allow for operational flexibility.

- b) It was noted by the audit team that altered forest operation prescriptions (FOPs) were not always updated in the AWSs. When an Extensive treatment is chosen over an Intensive treatment no associated FOP revisions were found. This does not follow direction found in the 2004 FMPM and the Forest Information Manual²¹ (FIM) that a FOP be in place, with any changes certified by an RPF prior to operations commencing. This need not be an onerous task. FOP revision may be as simple as faxing a new certified stand list to the MNR Area Forester for inclusion in the AWS as described in the 2004 FMPM (page D-6; lines 31-35).

Recommendation 12: Tembec must update all FOPs in the appropriate AWS when changes occur.

3.4 Plan Implementation

3.4.1 Areas of Concern

The audit team observed a wide variety of AOC prescriptions including some to protect raptor nesting sites, water quality and fish habitat on warm and coldwater streams and lakes, viewsheds along canoe routes, and recreational trails. AOC prescriptions followed specific direction within a guideline where that was available (e.g. Timber Management Guidelines for the Protection of Fish Habitat²²). Where the planning team needed to devise a prescription that would protect a value where specific direction was not available in a guideline (e.g. important walleye lakes, tourism/cottaging lakes, cottage properties) the audit team's opinion was that the value had been afforded adequate protection and the prescription was appropriate for the site conditions encountered. Public consultation on an appropriate prescription was documented for a number of the prescriptions (e.g. Horwood Lake, Aboriginal values). The audit team noted that prescriptions examined were carried out as planned and that there were no reported compliance infractions with AOCs from either industry or MNR inspectors for the 2002-2007 FMP; a rare achievement.

3.4.2 Harvest

The audit team viewed a sample of harvest activities for each year of the audit term. The sample included operations by each contractor operating during the term on a variety of site types through all seasons. Harvesting contractors mainly used feller-bunchers and, on select sites, processors with the wood being moved to roadside by skidder. Wood was hauled to roadside as full tree, tree length or as cut-to-length and roadside processing included delimbing/slashing or bucking. At a few sites wood still needed to be hauled and fuelwood piles were also evident.

There were a few non-compliances during the term consisting of small trespasses; however, in general boundary control was noted by the audit team to be very good. The use of global positioning system (GPS) technology following Tembec's standard operating procedure for boundary layout is reducing errors in boundary marking. The new FRI increased the precision of base features and will further aid boundary marking in the future.

The audit team was surprised to note that site disturbance was almost non-existent during the site visit. Considering the winter harvest and fine-textured soils that are common on the Forest, this was noted as exceptional. The audit team believes that this was accomplished through continued operator training efforts.

Best Practice 2: Tembec is commended for minimizing site disturbance during the audit term.

²¹ MNR, April 2001. Forest Information Manual. Ont. Min. Nat. Res., Queen's Printer for Ontario. 440 pp.

²² MNR, April 1988. Timber Management Guidelines for the Protection of Fish Habitat. Ont. Min. Nat. Res., Queen's Printer for Ontario. 14 pp.

In spite of the continued difficulty to secure a consistent birch market, utilization appeared to be good for most species on most sites, particularly in conifer dominated areas. Birch residuals are still an issue on some sites but many residual trees were under-sized, giving the appearance of poor utilization at first sight. Nonetheless, the audit team believes that there is room for improvement in utilization, primarily on mixedwood sites and conifer sites with pockets of hardwood.

MNR compliance audits have included residual tree surveys that indicate the retention of excessive numbers of trees on some sites. For example, Block 93 was noted by MNR as having approximately 52 residual trees/ha. On Block 11 MNR's residual tree survey found 232 trees/ha; this was deemed appropriate since the prescription was for natural regeneration. However, the species composition of the residual was Bf4Bw4Sb2 from an original stand dominated by spruce. Given the residual composition, the audit team does not agree with the rationale given for the large number of trees left on Block 11 and is concerned that utilization is not being adequately assessed. The audit team notes that utilization must be correctly gauged in the future to ensure compliance with the Scaling Manual²³ and FMP.

Recommendation 13: Tembec and MNR must ensure that utilization is properly assessed on all harvested sites.

Although most of the harvest prescriptions viewed were appropriate for the actual site conditions encountered, there were a few notable exceptions. The southern portion of Block 30 contained upland spruce, pine and mixedwood areas where mainly conifer was removed and most hardwood was left standing. According to Tembec staff more hardwood existed on this site than was noted during a pre-harvest reconnaissance flight and there was no market for the hardwood. There are no immediate plans to complete further treatments on this site and MNR sanctioned the retention of the hardwood through acceptance in the compliance report. Where overstory exists new stand development will be impeded. This does not comply with the 2002-2007 FMP, the Scaling Manual²⁴, the Silvicultural Guide to Managing for Black Spruce, Jack Pine, and Aspen on Boreal Forest Ecosites in Ontario Book III: Ecological and Management Interpretations for Northeast Site Types²⁵ (the Silviculture Guide) or the CFSA.

Recommendation 14: Tembec and MNR must ensure that the residual trees in all harvested blocks do not jeopardize regeneration.

As noted, the cutover portions of Block 30 were conifer mixedwoods that included a large component of natural white spruce. Natural accumulations of white spruce are uncommon on the Forest - the working group represents about 1.5%. If no further treatments occur in cutover portions of Block 30, the area will not naturally regenerate to conifer mixedwood and the white spruce component will be reduced or effectively absent in the future stand.

According to Tembec staff, as a result of limited silviculture funding, the renewal plan for Block 30 was to monitor it for a few years to determine whether adequate natural regeneration to hardwood occurs in the cutover areas. While there is allowance to naturally regenerate hardwood mixedwoods from conifer-dominated mixedwoods, the audit team believes that areas where white spruce has naturally grown in abundance require assistance to renew to a similar condition. While Tembec does plant several thousand white spruce seedlings each year, mainly as a component of mixed conifer planting, efforts to maintain the white spruce component of mixedwood stands are important.

²³ MNR. April 2007. Scaling Manual. Third Edition. Ont. Min. Nat. Res., Queen's Printer for Ontario. 93 pp. + Appendices.

²⁴ MNR. December 2000. Scaling Manual. Second Edition. Ont. Min. Nat. Res., Queen's Printer for Ontario. 79 pp. + Appendices.

²⁵ MNR. 1997. Silvicultural Guide to Managing for Black Spruce, Jack Pine and Aspen on Boreal Forest Ecosites in Ontario. Version 1.1.1. Ont. Min. Nat. Res., Queen's Printer for Ontario. 3 books, 822 pp.

Recommendation 15: Tembec must ensure that, where white spruce is a component of the stand prior to harvest, renewal activities target similar levels in the future forest.

The second noted exception to appropriate and effective prescriptions was the widespread use of careful logging around advance growth (CLAAG) for all lowland sites. CLAAG is only appropriate where abundant spruce understory trees and suitable seedbed is available post-harvest. In some areas viewed during the audit very few residual trees were noted and/or residual trees consisted mainly of larch, cedar or balsam fir (e.g. Block 11). CLAAG is not an appropriate prescription on even-aged spruce sites with little advanced growth or on competitive sites where other species persist. Regeneration by advanced growth is listed as "Not Recommended" for several ecosites in the Silvicultural Guide.

Recommendation 16: Tembec must only prescribe CLAAG on appropriate sites.

It should be noted that CLAAG and careful logging are not the same treatment. According to the Silviculture Guide: "*Several terms have been used to refer to CLAAG ...the term careful logging is inappropriate because it also applies to operations that do not have advance growth preservation as an objective (Groot 1994)*". Careful logging is a practice used to reduce disturbance of soil and vegetation whereas CLAAG is a specific treatment to retain actual advance growth (mainly spruce).

The last prescription of concern was the extensive treatment of upland sites within lowland complexes (e.g. Block 11 stand 4840, Figure 3). Although the preferred treatment for these stands is usually intensive, Tembec normally chose natural regeneration, citing access constraints and cost as reasons for not completing artificial renewal treatments. The chance of regaining pre-harvest conifer on these sites is low. Instead, poorly stocked mixed hardwood will likely result.

Recommendation 17: Tembec must ensure that, on average, the conifer component of upland stands within lowland complexes is retained in the future forest.

Despite a recommendation for slash reduction in the previous two IFAs, slash management remains a concern on the Forest in this audit. This was most prevalent on the lowland blocks viewed where slash covered significant areas of productive land. Desired forest renewal will not be achieved in these areas, and this represents a loss of productive land (Figure 4).

Recommendation 18: Tembec must reduce the productive area covered by slash in lowland blocks in the Romeo Malette Forest.

On upland sites slash was either piled or burned, but rarely did both occur. Piling or burning did reduce the footprint of slash on cutovers. However, the large piles left behind were, in some cases, still numerous and should have been removed (Figure 5). Discussion in the field between Tembec staff and the audit team demonstrated due consideration of slash management with cost being the major impediment to better slash management. While the audit team recognizes efforts made to reduce the amount of productive area lost to slash by piling efforts in some areas, it remains concerned that cumulative losses will not be insignificant.



Figure 3. Example of an upland site within a larger lowland complex with no follow-up treatment.



Figure 4. Extensive slash "footprints" on a lowland site which will significantly impede forest regeneration.



Figure 5. Example of a cutover with slash piles lacking further treatment.

While slash management practice in Ontario has relied primarily on piling limbs and tops and then burning these slash piles in late fall and early winter when forest fire risks have largely subsided, recent trends have seen a reduction in this practice for a number of reasons including:

- high cost relative to the recoverable productive forest land area;
- narrowing of the time period in which slash pile burning is permitted by MNR Fire Branch making the practice more difficult to perform effectively;
- lack of clear provincial direction respecting slash management;
- emerging use of slash as biomass for power generation; and,
- opposition to slash pile burning from other forest users.

At the time of the field site visits, the Romeo Malette Forest demonstrated an assortment of slash management directions from no management to piling with burning to piling with no burning without evidence of approval or disapproval from MNR. In the opinion of the audit team, this is a clear illustration of a lack of provincial direction. Further complicating the matter is the emerging concept of using slash for energy generation. The audit team believes that provincial direction is needed and emphasizes the need for flexibility while ensuring that loss of productive forest land is minimized.

Recommendation 19: Corporate MNR must provide clear direction for slash management to limit losses of productive land.

3.4.3 Renewal

As part of the field site visits, the audit team observed a variety of silvicultural treatments that were implemented on the Romeo Malette Forest during the audit period. These included mechanical site preparation, tree planting, aerial seeding, aerial and ground chemical tending and natural regeneration. The renewal activities and SGRs were approved in the FMP and the AWSs, consistent with the FOPs, and were generally appropriate and effective for the specific site conditions. Renewal activities were also consistent with information included in the annual reports. As noted previously, there was one exception in the SGRs regarding commercial thinning in jack pine plantations. A detailed monitoring program covered the periods of both the 2002-2007 FMP and the 2007-2009 CFMP. This is discussed further in Section 3.6 of this report.

For the 2002-2006 period, 96% of the harvest area was regenerated (i.e. 12,770 ha were harvested while 12,267 ha were regenerated). The actual levels of renewal activities for the 2002-2007 FMP term on the Romeo Malette Forest were greater than planned, except for the area reported to date for natural regeneration, which is less than planned. The area reported to date as natural regeneration is 34.7% of the planned area for the FMP based on four years of harvest. The total area harvested in the first four years is 61% (12,770 ha, 2002-2006, AR-2) of the total planned harvest area (21,069 ha, FMP-18) for the 2002-2007 FMP. This difference contributes to the reduced natural regeneration area. Once the 2006-2007 annual report is completed, additional area will be identified as natural regeneration. At one field site, the audit team viewed an area which was planned as natural but was planted, further reducing anticipated natural regeneration levels.

Tembec planted 8,032 ha or 106.6% of the area planned during the 2002-2007 term. According to the Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report (see Appendix A), *"...the 2002 FMP assumed there would be no planting in the BW1, LC1, PO1, or SB1 forest units, but planting occurred in each. Planting of PO1 and BW1 areas occurred most often when small stands of hardwoods were in larger conifer blocks. To make the areas operational for planting the entire block was planted, or a logical boundary such as a road or creek was used as a boundary for the plantation. There was also planting of poplar sites in support of the OMNR Ontario Forest Research Institutes (OFRI) NEBIE mixedwood trial and the Canadian Forest Service's (CFS) mixedwood research trial (215 ha)."*

The planted sites are generally well done and species match the specific sites. Jack pine and black and white spruce are most commonly planted. On suitable sites white and red pine had been planted in a mix with other species to maintain their presence on the landscape as part of the red and white pine strategy adopted for the 2002-2007 FMP.

At one field site the audit team observed an area which was fill planted with container stock to raise the stocking to acceptable standards. It had been planted in 2005 and chemical sprayed in 2006. It was the only site visited where many of the seedlings had failed (Figure 6). Upon digging up several trees it was apparent that they had been planted in the duff layer and had dried out. No assessment plots were used here. This was a relatively small area but the incident emphasizes the importance of planting quality assessments on every block and supervision of planters. The finding is included as part of the discussion leading to a recommendation in Section 3.6.

One jack pine aerial seeding project of 50 ha was completed, although no seeding had been forecasted in the FMP. An amendment to the FMP and an AWS revision was done to permit this treatment. Although initial assessments had seen only 50% stocking, the audit team witnessed substantially increased stocking levels due to further germination and volunteer jack pine. Tembec staff pointed out plans to increase the use of seeding on appropriate sites and the audit team encourages this.

Mechanical site preparation was completed on 5,077 ha or 67% of the forecasted area using primarily power disk trenchers. During the term of the audit, Tembec decreased the use of mechanical site preparation in an attempt to reduce overall costs. Mechanical site preparation has become more site specific, focusing on sites having a thick duff layer or heavy residual slash which would impede tree planting. On other site types, more emphasis has been placed on hand scalping and direct planting. Chemical site preparation was also used on a total of 187 ha with none planned. The 2003-04 AWS, Table AWS-4, and FOPs were appropriately revised to include chemical site preparation.

Tembec also completed a research and development trial to assess innovative methods of maintaining a mixedwood stand by using site preparation and planting. A Nokamic mulcher was used to create planting spots by mulching two metre wide trails throughout a block where little or no conifer existed. A net area of 11.5 ha was treated with this method.



Figure 6. Example of planted seedling that succumbed because of poor planting.

3.4.4 Tending and Protection

Tending and protection activities on the Romeo Malette Forest included ground and aerial herbicide spraying, and pre-commercial thinning in jack pine. No protection (insect pest control) activities were planned or carried out. Tending activities were consistent with the FMP including the SGRs and the FOPs, and were appropriate to the specific site conditions.

The actual aerial tending level was 181% (8,776 ha) of the planned area (4,843 ha). Ground chemical tending was 28% of the forecasted 373 ha and was used in areas proximal to cottages or homes. The tending forecast was 69% of the original forecasted planned area. Additional areas required tending as the implementation of the five-year plan unfolded. There was no chemical tending planned for LC1 or SB1 sites, which were partially planted and required chemical tending. Also, there was a need to treat lowland sites to control alder competition. Other areas were assessed for FTG status and were found to be not sufficiently regenerated (NSR) and required aerial chemical tending to allow these areas to meet regeneration standards.

There were many good examples of effective herbicide spray applications. The audit team did, however, observe a site which had been planted in 2006, two years after harvest where there was heavy competition. The site was sprayed during the summer of 2007. The trees exhibited excellent growth in most cases; however, the site will require careful monitoring to ensure the survival and continued growth (Figure 7).

The Romeo Malette Forest is FSC Certified and as part of that commitment, Tembec has a herbicide reduction program in place. The Company is using AgNav technology to better place chemical on the site where it is most needed, and reducing the total amount of chemical required. This appears to be an excellent tool for planning the aerial application of herbicides.



Figure 7. Example of planted seedling that is exhibiting good growth but will require further monitoring to ensure survival.

Mechanical tending was forecasted in FMP-25 but was not carried out. No explanation was found in the annual reports.

Pre-commercial thinning was completed on 57% or 285 ha of 500 ha forecasted. This work was done in 2002-2003 and was recorded in the annual report. A survey was undertaken to identify more areas to be thinned but 98% were found to have densities less than 4,000 stems per ha making them unsuitable for pre-commercial thinning.

3.4.5 Renewal Support

The 2002-2007 FMP term of the Romeo Malette Forest started with an insufficient supply of black spruce seed, with seed to be collected at the earliest opportunity during a good seed year. Jack pine seed was also in limited supply and would be collected as needed. Seed collection efforts were engaged to overcome the supply deficit and surpass planting targets for the audit term.

Tembec collected a total of 69.4 hl of black spruce cones, 114.1 hl of jack pine cones, 31.5 hl of white spruce cones and 10.9 hl of white pine cones during the first four years of the FMP. Some of the black spruce and jack pine cones were collected by the tree improvement partnership (NESMA) from seed orchards.

The FMP estimated an average annual production of two million trees for use on the Romeo Malette Forest. The number of trees that have actually been planted in four years totals 13 million or approximately 3.25 million trees per year. The area requiring planting and the planting densities will have to be reviewed for the next FMP.

Millson Forestry Services supplies planting stock for the Romeo Malette Forest. All seedlings are jiffy container stock.

There are no seed orchards on the RMF; however, as noted previously, Tembec provides financial support to the Tree Improvement Council, a joint industry and MNR funded organization that manages Ramore Seed Orchard. The Ramore Seed Orchard is outside of the Romeo Malette Forest.

Overall, Tembec carried out an effective renewal program during the audit term. Many good results of the Company's efforts were observed by the audit team. Tembec is encouraged to continue to work towards improving its knowledge base through the exchange of information with field experts from other forests.

3.4.6 Access

Sampling for access examination included a selection of road construction and maintenance activities as well as water crossing installations. Road examination included a sample of road construction and maintenance funded through the Road Construction and Maintenance Agreement for the year ending March 31, 2007.

The road construction, maintenance and crossing work viewed was completed according to the 2002-2007 FMP and was compliant in most cases. Culverts on the newly constructed Flag Lake Road were particularly well done. The sample of road construction and maintenance work that was invoiced under Road Construction and Maintenance Agreement illustrated that the work had been performed.

There were some compliance issues noted during the audit term including a small trespass due to road layout; these issues were not significant. The audit team did note some practices that need to be improved. The use of cross drainage culverts was variable on the sites viewed. For example, Block 28 had several cases of ponding next to roads which could have been prevented by properly installing cross drainage culverts (Figure 8).

Recommendation 20: Tembec must ensure that cross drainage culverts are installed wherever necessary.

Water crossings were very well done with proper diameter pipes, pipes long enough to allow appropriate sloping of the shoulders, rock rip-rap around the culverts, and proper embedding. Tembec's practice is to seed fill slopes along water crossings to encourage vegetation establishment and aid stabilization. Although the audit team saw examples where fill slopes were not adequately re-vegetated, no examples of erosion problems as a result of inadequate re-vegetation were witnessed.

One 16 m temporary bridge was examined at field site #4 on the ground audit. The bridge approaches, placement, and support structure were well done with no sign of erosion. The 2002 IFA recommended that Tembec ensure that, *"...bridges used in the Forest are engineered to minimize sedimentation problems..."* and the audit team saw that the Company had added decking in the middle of the bridge to close a gap which had allowed road surface materials to fall into the river. However, an approximate 8 cm gap along both sill rails at the edges of the bridge still allows sediment to fall into the river from the bridge surface. The following recommendation is provided to address this matter.

Recommendation 21: Tembec must ensure that bridge surface construction minimizes the amount of sedimentation that can occur.

The audit team saw two examples of sites where a temporary bridge had been removed, and noted that it was well done with little disturbance of shoreline vegetation and no erosion problems with the approaches (Figure 9).



Figure 8. An example of ponding due to inadequate cross drainage.

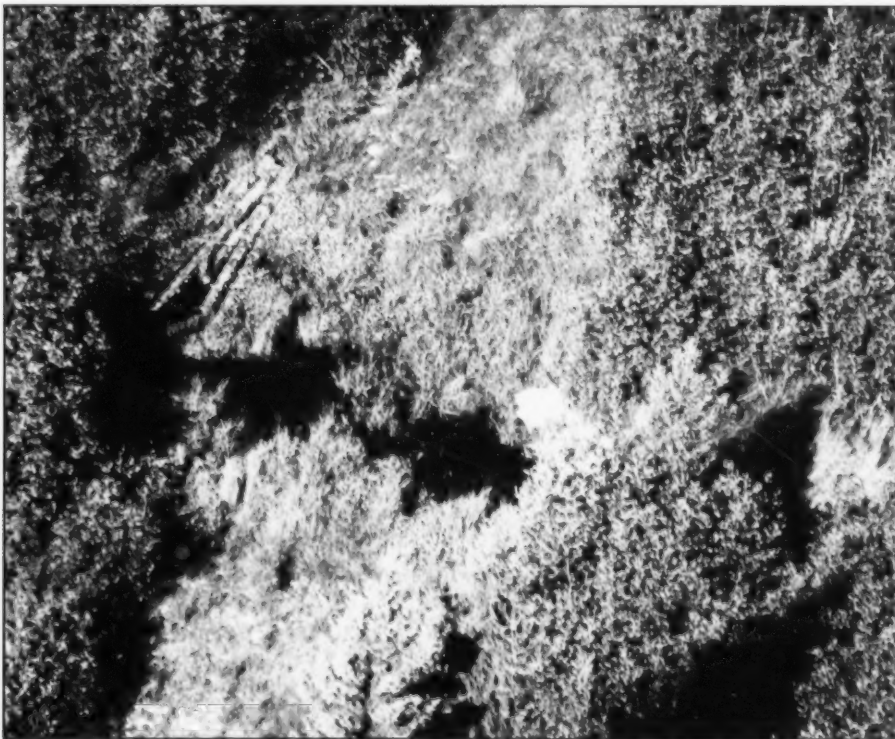


Figure 9. Aerial view of crossing removal and rehabilitation.

One example of excessive grubbing within 100 m of a water crossing was seen during the field site visits. This is contrary to mandatory standards in the Environmental Guidelines for Access Roads and Water Crossings²⁶. A review of the Company's standard operating procedures revealed that there was no direction to operators to minimize grubbing proximate to water crossings.

Suggestion 6: Tembec should ensure a company standard operating procedure advises operators to minimize grubbing within 100 m of water crossings or sensitive waterbodies.

Category 9 and 14 gravel pits (plus one Category 10) used for road construction on the Forest were examined. Work that was done in the Category 9 pits during the term was well done. Pit boundaries were marked, trees removed and overburden removed and stored. The audit team also saw older pits that had not been operated during the term of the audit. Work that was done in these old pits by previous permittees was not well done. Old working faces were not left at angles of repose, trees were left too close to pit faces, there was no rehabilitation, etc. Although the permits for these pits are no longer valid, their sub-standard rehabilitation could be viewed as a safety concern. The audit team offers the following suggestion to address safety concerns in old pits.

Suggestion 7: MNR should investigate liabilities associated with outdated pits and ensure that safety concerns are mitigated.

Category 14 pits were well done with proper clearing of trees, good sloping of pit faces, etc. The audit team saw good examples of Category 14 pit rehabilitation. One possible area for improvement was re-vegetation of rehabilitated Category 14 pit sites. While the rehabilitated pit sites the audit team examined were nicely sloped and planted, lack of organic matter or nutrients or both on the sites was causing marginal regeneration success, particularly on sandy sites. The audit team is uncertain whether this is the result of failure to properly store and redistribute overburden at the pit site or just a function of too little overburden on the site originally.

Suggestion 8: Tembec should instruct operators to store and redistribute overburden carefully at all aggregate pit sites to facilitate better re-vegetation after rehabilitation.

Timmins District has an AOC prescription which requires the removal of all operational roads for a distance of 290 m from lakes which have been designated for walleye protection. The audit team noted a tertiary road in a recent Tembec harvest area, which terminated at the edge of and perpendicular to a 30 m reserve on a small lake (Figure 10). Presumably subsequent to the harvest, a wide trail was created through the 30 m reserve to access the lake. This trail had been heavily used, likely by fishermen as evidenced by on-site angling trash. The level of use indicated a highly valued sport-fishery. If this lake had been identified as a walleye lake it likely would have had restrictions at least on the proximity of tertiary roads if not the full walleye lake protection AOC (90 m reserve; removal of all operational roads within 290 m).

MNR does very little in terms of lake surveys; therefore it is possible that more of these waterbodies (which are often known locally) will become easily accessed and heavily harvested. Small walleye lakes are rapidly exploited once accessed and take a long time to recover. To better protect unknown fisheries in unsurveyed lakes, the audit team offers the following recommendation.

Recommendation 22: Tembec must develop and implement an operating procedure to ensure that new road construction does not facilitate vehicular access into AOCs that protect unknown fisheries values.

²⁶ MNR. 1990. Environmental Guidelines for Access Roads and Water Crossings. Ont. Min. Nat. Res., Queen's Printer for Ontario. 65 pp.



Figure 10. Vehicle route developed through a riparian AOC after tertiary road was constructed to within a few metres of the AOC (photo taken from a point near the lakeshore).

3.5 System Support

3.5.1 Human Resources

As mentioned in Section 3.1, the 2007 IFAPP states, "The Commitment principle and the Human Resources criteria of the System Support Services principle will be considered to be met if the Forest is certified to one of the three accepted certification standards..." and "The Forest will therefore not require an audit of these principles and associated criteria as part of their IFA." Since the FSC Principles and Criteria for Forest Management is one of the accepted certification standards and since Tembec Forest Industries Inc. has received FSC certification for its work on the Romeo Malette Forest (FSC Certification Code: SW-FM/COC-1366, November 18, 2004), the Human Resources criteria of System Support was not included in this audit.

3.5.2 Documentation and Quality Control

The identification, preparation, distribution, collection and maintenance of forest management documents and records were well done by Tembec. Records were up-to-date. Binders of relevant forest management planning information were made accessible at a central location for the audit team. Project files were well organized and kept available in a central location where they could be easily retrieved. Older files were archived and could be retrieved. Mapping is done electronically and printouts were available and made as needed. All digital information was backed-up and stored off site.

At the MNR office, the more current planning binders and documents are kept with the Area Forester for access by others as needed. The preparation, distribution, collection and maintenance of forest management documents

and records were well done. Records and documents are kept up-to-date. AWSs are submitted digitally by the Company; paper copies are made and kept in the map room with maps where this information is easily made available. AWS revision requests are printed and circulated to staff in the District for comment. The Area Forester handles all these requests and responds to Tembec.

3.6 Monitoring

3.6.1 General Monitoring

Besides the required exception declaration of all clearcuts exceeding 260 ha in size, one exception to the silvicultural guidelines was identified in the 2002-2007 FMP; a proposal for commercial thinning in jack pine. Although 37 ha of commercial thinning in jack pine were completed and monitoring plots were established, no monitoring measurements were performed by the Company since the area represented a very small sample size and plots have been established on other forests which will be measured and tracked.

Compliance

MNR and Tembec had strategic and annual compliance plans in effect during the audit term and completed compliance inspections in each of the operating years during the audit term. The Timmins District 5 Year Compliance Strategy 1999-2004 was not updated at the end of the term. This was a result of direction at the time indicating that District Compliance Plans would soon not be required. An Annual Compliance Operating Plan Implementation Strategy was also available for each year of the audit term. The annual strategy outlined specific items to be assessed for compliance during the year. There are very few specific strategies related to the RMF in these documents.

Tembec produced a five-year strategic compliance plan for the 2002-2007 FMP and a two-year strategic plan for the 2007-2009 CFMP as well as annual compliance plans for each AWS. These plans met the requirements of the compliance guide.

The level of compliance inspections completed by MNR and Tembec during the audit term was appropriate and a full compliment of forest operations was checked. Table 3 provides a summary of compliance reporting for the audit term based on annual reports. Out of a total of 563 inspections completed by Tembec, only eight non-compliances were recorded (98.6% compliant). According to annual reports, MNR completed about one-third as many inspections but noted a higher rate of non-compliance (8 of 202 equals 96.0% compliant). The higher incidence of non-compliance noted by MNR for the period is mainly a result of MNR reporting on all non-compliances noted by Tembec.

Table 3. Summary of compliance during the audit term.

Year	Tembec		MNR	
	# of Reports	# of Non-compliances	# of Reports	# of Non-compliances
2002-03	204	4	64	4
2003-04	146	1	61	1
2004-05	126	1	34	1
2005-06	55	2	25	1
2006-07	32	0	18	1
Total	563	8	202	8
Percent		1.4%		4.0%

In any case, the reported compliance record of Tembec was quite good and was consistent during the term. This is largely a result of staff and contractors following extensive procedures developed for Tembec's Environmental Management System (EMS) and completing the accompanying training program. However, the audit team

believes that more non-compliance should have been detected during the term. Specifically, assessment of utilization needs to improve and a recommendation is made in Section 3.4.2.

When non-compliance occurred, remedial actions were appropriate. In 2004, the electronic forest operations information program (FOIP) reporting system was initiated. This streamlined the reporting process so that for each operation reported on, a single report is filed by MNR and Tembec; thus eliminating, among other things, dual reporting of non-compliances (not an issue in this audit).

Timelines for submitting compliance reports were not always met by Tembec early in the audit term. This improved during the term and is no longer an issue. During the audit term, MNR compliance reports were submitted according to stipulated timelines.

According to Tembec staff, the main silviculture contractor on the Forest began self-compliance in 2005-2006 while the harvest contractors began the next year. All compliance inspectors completed the required training. Under this new arrangement, Tembec completed operator compliance checks and verified all compliance reports submitted. Self-compliance by operators is now a common facet of forestry in Ontario. This arrangement was not detailed in the strategic compliance plan for the 2002-2007 term or the annual compliance plans and therefore should not have occurred until the FMP was amended accordingly (it has been included in the two-year strategic compliance plan in the CFMP).

Another compliance issue noted during the audit term is the lack of use of block suspensions when necessary. The policies and procedures documents related to the Guideline for Forest Industry Compliance Planning²⁷ are clear as to the proper use of block suspensions and the audit team makes the following recommendation.

Recommendation 23: Tembec and MNR must ensure that blocks are suspended as required.

Renewal

A number of different surveys were used to assess the survival and growth of the regenerating forest. In most cases, Tembec establishes tree planting quality assessment plots during the tree plant while the tree planters are still present in an area. These plots are randomly located and are used to determine the percent quality of the planting, measure utilization of plantable spots, predict survival and determine conifer tree seedling density in the area. This allows the Company to correct problems while the planting contractor is still on site. However, at one field site the audit team observed a plant where no assessment plots were completed. At this particular site, a small fill planted area failed and had not been re-treated, emphasizing the importance of completing assessment plots.

Plantation assessment plots are established on most sites by Tembec after tree planting is completed to monitor plantation survival and growth. An exception to this practice was observed at one site and noted above. These are circular sample plots located using GPS technology. The centre is marked by a flagged assessment pin as are all trees in the plot. Tembec assesses these trees in the first and second year after plantation establishment to identify any impediments to growth and survival. This information is used to determine the need for fill plants and competition control. If no problems exist after the second year, the plot pins are removed and the trees are left to develop until FTG.

Post harvest surveys were carried out by Tembec on sites that were logged using the CLAAG operational practice. These surveys were done one year after harvest to assess the success of regeneration. The plots were mapped and the GPS location recorded. Where natural regeneration was not expected to be sufficient, the site was scheduled for reassessment the following year once the need for follow-up treatment was decided (either planting, seeding and/or competition control). The sites that were expected to regenerate naturally are next surveyed at the FTG stage.

²⁷ MNR. 2005. Guideline for Forest Industry Compliance Planning. Ont. Min. Nat. Res., Queen's Printer for Ontario. 17 pp.

There were no formal assessments on naturally regenerating sites done during the audit period other than CLAAG harvested areas, until the FTG surveys were conducted. It should be noted that the 2007-2009 CFMP recognized the need to survey the natural regenerated conifer stands earlier and included this statement: *"In natural regenerated conifer stands, the SGR's FTG ages range from 6 to 11 years but an actual survey is done at year 6 in case a tending treatment is required. It has been observed that waiting for a year 10 to survey conifer natural regenerated areas is too long if a tending treatment is required."*

Tembec has also established 15 Forest Regeneration Plots on the Romeo Malette Forest since 2002. These are permanent fixed area sample plots. A centre post location is established with a flagged assessment pin and the location is recorded by GPS. Currently these plots are established in pre-commercial thinning areas, both control and treated, and in newly established plantations. The intent is to maintain and measure these plots to at least the pre-commercial thinning stage. The purpose of these plots is to monitor forest regeneration through time, which includes forest health, out-plant performance, and treatment types.

FTG assessments were done by helicopter and ground surveys to determine species, height and stocking. FTG sites checked during the field site visits showed that stand typing, stocking and height estimates were accurate (Figure 11). FTG surveys are conducted seven growing seasons after establishment for artificial regeneration and approximately ten years after harvesting on naturally regenerated stands.

The area forecast to be assessed for FTG in the 2002-2007 FMP was 19,920 ha. Some addition errors in the annual reports were found, making the total area assessed to date and the total area successfully regenerated somewhat higher than forecast. The corrected total of 15,560 ha was actually assessed in the first four years of the plan period. Of that area, 12,930 ha or 83% was successfully regenerated. The area surveyed and deemed not FTG was 2,630 ha. The annual report describes this as mostly NSR-2, which requires tending.



Figure 11. Aerial view of FTG jack pine at Stop 3.

The audit team recognizes that there has been some good work done in the assessments and monitoring of renewal efforts, however there were some monitoring shortfalls observed on the field site visits. These included:

- planting quality problems in Block 28 fill plant area,
- trees planted at the bottom of site prepared trenches,
- treatment scheduling problems, e.g. Block 81 where there was a two year lag between harvest and planting during which time competition had become established and overtopped the trees,
- the need to assess the natural regeneration of conifer before FTG survey time so that remedial work can be done where necessary.

Recommendation 24: Tembec must develop and implement a program to systematically monitor and track all silviculture activities to ensure desired stand development according to the SGRs.

3.6.2 Annual Report

The annual reports for four years from 2002 to 2006 were examined. The reports were generally found to be complete and accurate and included discussions of results and emerging trends in terms of progress towards achieving targets identified in the FMP however, two discrepancies were found:

- Tables AR-7, and AR-6 for all years were missing 100 ha forecasted for mechanical tending which was listed in FMP-25.
- 500 ha which was forecasted for pre-commercial thinning was not carried forward after the 2003-2004 AR. It was not identified in Table AR-7 or the text of the reports.

The monitoring and assessment sections of the annual reports presented a good discussion of compliance issues. They accurately reported the types of non-compliance, the reasons for their occurrence, and the kinds of actions taken. The actions taken were appropriate.

3.6.3 Report of Past Forest Operations

The 1997-2002 Report of Past Forest Operations (RPFO) was examined for this audit. The 2004 FMPM has replaced RPFOs with Year Three, Year Seven and Year Ten Annual Reports. For the 2002-2007 FMP, a Year Ten Annual Report for 2006-2007 was to be produced instead of the RPFO. The Year Ten Annual Report was not due until November 15, 2007 and therefore not available at the time of the audit.

The RPFO examined the planned versus actual levels of operations including depletion, wood utilization by licensee, natural depletions, renewal and tending (maintenance), primary and secondary road construction and maintenance. Reasonable explanations were provided for differences between planned and actual levels of achievement.

The RPFO described data management as an issue identified in the 2002 IFA. Tembec has adopted standard information updating procedures that are used for all forests that it manages from its Timmins office. As well, the anticipated market for oriented strandboard (OSB) white birch did not materialize during the five-year period of the 1997-2002 FMP. Only 0.7% of the planned birch volume was utilized, all of which was sawlog and veneer volume. This lack of utilization of OSB birch was cited as creating issues for effective regeneration of sites containing a large proportion of birch overstory, which remained post harvest. There is an increase in competition on the site making establishment of seedlings difficult, and the presence of the birch overstory reduces the effectiveness of any follow-up tending treatments.

Yield estimates used in planning on the RMF were inaccurate and did not provide the measure needed to ensure a predictable, continuous volume supply. Conifer volumes were consistently underestimated and hardwood volumes were consistently overestimated. The conifer volumes overall exceeded the planned volume by 8% on 68% of the harvest area. The poplar volumes tend to be 30% less than predicted, with OSB birch volume up to 50% less than predicted (mainly due to size and form). Work has been done through the Forest Research Partnership to develop new yield curves which will be used in the 2009-2019 FMP.

The 1997-2002 FMP used SFMM to determine the AHA by forest unit and age class. Allocations were made based on the AHA from the selected management alternative, although there were some slight changes from the AHA identified. RPFO-1 summarized the five-year depletion area (harvest, bypass, reserve and natural) by forest unit, age class, and stage of management. The total AHA was 24,613 ha. The forecasted harvest area was 24,906 ha, and the area actually harvested was 17,035 ha or 68% of the forecast harvest area.

The RPFO explained the differences between the allocations and the AHA for the various forest units. RPFO-2 summarized the level of forecast and actual depletion area by forest unit and compared these levels to the corresponding projected values associated with the selected management alternative. There was no projected information available for reserves, fire, insects or other depletions due to the changeover from the Timber Management Plan (TMP) to the FMP. Overall the total depletion for the term was 99% (24,317 ha) of the forecasted area (24,613 ha), realizing not all the forecasted information was available. The conclusions stated in the RPFO appear valid. The shortfall in harvesting can be attributed to several factors:

- use of volume versus area regulation. The volume requirement for the mill was set for the year. The area required to produce that volume was planned for harvest in the AWS. Conifer volume estimations used in the FMP underestimated the actual conifer volume realized during harvest, resulting in the need to cut less area to attain the same volume. The most significant underachievement in harvest was in the MX forest unit where 63% of the allocated area was depleted. Also, 64% of the SU forest unit was depleted.
- in 1997, the Malette Inc. OSB mill burned and was shut down for 11 months.
- in 1997, there was an amendment to the FMP to carry-over seven blocks from the previous FMP. The blocks were approved in July 1997 and further reduced the need to harvest blocks that were approved in the 1997-2002 FMP.
- salvage harvesting further reduced the demand to harvest blocks from the 1997-2002 FMP.
- in addition, individual decisions were made to not harvest certain blocks such as blocks that fell into OLL sites and were left unharvested; Block 36 was identified for commercial thinning that was never carried out; blocks in the north east corner were left as part of a marten core; blocks left standing because of their high birch component and lack of market for birch at the time.

Sufficient renewal funds were generated to support the level of renewal activities during the five-year period. A total of \$7,505,000 from the Renewal Trust Fund was spent during the five-year period, with an additional \$520,000 coming from Forestry Futures. The Renewal Trust Fund minimal balance was maintained during the five-year period of the RPFO and silviculture work was completed as required. Overall the intent of the FMP objectives to provide a cost effective silviculture program while ensuring effective renewal was achieved. The 1997-2002 RPFO did not include a summary statement of silvicultural effectiveness by forest unit, working group and silvicultural treatment package for silvicultural objectives.

A list of 19 amendments was included in the RPFO; five minor amendments and 14 administrative amendments. An explanation was included in the RPFO for the amendments. It also stated that the 2002 IFA audit team noted that the amendment process was followed carefully; all 19 amendments were processed and documented properly.

All recommendations from the 2002 IFA were discussed, including actions taken by the Company, and were incorporated into the appropriate sections of the RPFO as required.

The RPFO includes a discussion on the assessment of forest sustainability. The 1996 FMPM outlines six criteria to determine the sustainability of a forest management plan and measurable indicators are provided for five of these criteria. Five of the measurable indicators were used predicatively in the analysis of management alternatives. The RPFO explained three of these indicators as follows:

1. The managed Crown forest available for timber production by forest unit (RPFO-14);
2. The percent of AHA which is actually utilized (RPFO-18); and,
3. The frequency distribution of clearcut and wildfire sizes (RPFO-19a, 19b).

In addition, forest condition and socio-economic condition are discussed. RPFO-13, 15, 16 and 17 were not included as they were not required.

The 2002 IFA noted that the lack of continuity of forest units between plans made examining trends difficult, and the high proportion of depleted, barren and scattered (B&S), and NSR masked important aspects of the Forest. The conclusions point out that since the IFA was done, significant strides have been taken by Tembec to survey, and reclassify lands as productive forest as well as develop a new and more accurate FRI which will be used to develop the 2009-2019 FMP.

The Achievement of Management Objectives is also discussed in the RPFO, including forest harvest, silviculture, biodiversity, environmental and socio-economic objectives. Each of these included targets which were described as met, not met, or partially met, and reasons why were provided.

3.7 Achievement of Management Objectives and Forest Sustainability

3.7.1 Achievement of Management Objectives

Management objectives are developed for all Crown forests and, as such, must be consistent with the primary goal of forest management on Crown lands, which is to achieve a healthy, sustainable forest ecosystem, and derive the associated environmental, social and economic benefits as defined by the CFSA. At the individual forest level, management objectives are the desired outcomes of forest management planning achieved through the management of forest cover. The assessment of the achievement of management objectives is, therefore, a critical part of the review of the success of forest management. It also plays an important role in the process of adaptive forest management by allowing adjustments in objectives, targets and strategies over time to reflect successes, failures and the inclusion of new information and approaches to forest management.

The audit team reviewed the objectives of the 2002-2007 FMP and provides an assessment of their achievement in Table 4. All objectives were found to have been met or partially met. Audit team comment is provided for each objective to support the assessment.

Table 4. Review of the assessment of achievement of management objectives in the 2002-2007 Romeo Malette Forest FMP.

Objective	Audit Team's Assessment of Progress Toward Achievement	Audit Team Comment
Forest Diversity		
Ensure that current biological diversity of the forest is not significantly changed and where necessary and practical, is restored.	Partially Met	Will not likely meet Pw and Pr planting target of 250,000 but efforts have been made to return to the desired level.
Maintain habitat for selected featured species within the bounds of natural variation.	Met	All 19 selected wildlife species, except for black bear foraging in later terms, remain within the bounds of natural variation for the 2002 SMA.
To provide suitable marten habitat on the Romeo Malette Forest.	Partially Met	All cores currently only 51-72% suitable habitat.
Social and Economic Matters		
Ensure that the available forest is protected from sustained deforestation or conversion to other uses and to ensure that a balance is maintained between utilization and rejuvenation.	Met	All planned activities on the Forest have undergone a rigorous analysis to ensure sustainability.
Supply industrial and consumer wood needs while maintaining forest sustainability (CFSA, P ₂ SF ²⁸) to realize a predictable, continuous, and consistent flow of roundwood from the Romeo Malette Forest.	Met	The 2002 SMA was able to provide target volumes for Term 1 for all species groups. Forecast declines in SPF (Spruce Pine Fir) volume may be partially offset by revised yield curves as current yields surpass planned. Forecast Po volumes exceed targets. Forecast Bw volumes are slightly below target but so has recent utilization.
Provide for a range of quality resource-based tourism and recreation opportunities in response to demand, while maintaining forest sustainability.	Met	Tourism and recreation uses of the Forest considered in the planning and implementation of forestry activities.
Recognize the First Nation needs as they relate to the ecosystem.	Met	Tembec and MNR have developed opportunities for First Nations.
Develop and adopt an adaptive approach to ecosystem management with a built-in learning process.	Met	Sufficient examples of Tembec's practices that consider ecosystem management, and are subsequently monitored for improvement.
To ensure all forest values are considered and forest users with respect to ecosystem management in forest decision-making and that, consensus-building methods are used.	Met	Good consideration of many forest values - consensus efforts evident among planning team and LCC.
Ensure best available science and appropriate inventories are used.	Met	Old inventory used for the 2002-2007 FMP. New inventory completed during the term is state-of-the-art and is being used for development of the 2009-2019 FMP.
Work toward educating the public on forest ecosystems, objectives and management tools.	Met	Tembec's stakeholder outreach program and work with the LCC satisfy this objective.

*Continued on next page.*²⁸ MNR. Policy Framework for Sustainable Forests. <http://ontariosforests.mnr.gov.on.ca/publications.cfm#strategic>

Table 4 continued.

Objective	Audit Team's Assessment of Progress Toward Achievement	Audit Team Comment
Values Dependent on Forest Cover		
Minimize the adverse affects on water and soil.	Some partially met, some Best Practices	Site disturbance minimized during term - excellent work. Grubbing within 100 m of crossings may lead to adverse affects on water. Drainages on some roadways need improvement.
Ensure the protection of other values on the land base.	Met	Values protection planning and implementation was acceptable.
Establish and maintain representative, protected forest lands as part of Ontario's natural heritage.	Met	OLL lands not eligible for harvest.
Silviculture		
Ensure the genetic diversity of trees is conserved.	Partially Met	Supply of black spruce, white spruce and jack pine seed reported in the 2005-2006 AR. White pine is being left on site when encountered in harvesting. Concerns regarding maintenance / renewal of white spruce in mixedwood harvest blocks.
Provide for the long-term health and vigour of Crown forests by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbance patterns and landscape patterns.	Met	Many harvest blocks follow natural stand boundaries due to interspersions of lowland areas.
Keep forest ecosystems productive.	Met	The strategies listed above have been mostly met. An annual FTG assessment program has been implemented and reported in the ARs.

The objectives of the 2007-2009 CFMP were also examined and an assessment of their achievement is provided in Table 5. These assessments are limited to evidence drawn from the 2007-2009 CFMP since some 2007 planned activities had occurred on the Romeo Malette Forest at the time of the audit, but were not within the audit scope. All of the objectives are described as having been "Met" by the CFMP, except in one instance where, in the opinion of the audit team, the objective could only be "Partially Met" under the direction of the CFMP.

Table 5. Review of the progress towards achievement of management objectives in the 2007-2009 Romeo Malette Forest CFMP.

Objective	Audit Team's Assessment of Progress Toward Achievement	Comment
Forest Diversity		
Ensure that current biological diversity of the forest is not significantly changed and where necessary and practical, is restored.	Met	Measures to retain proportions of forest units over time.
Maintain habitat for selected featured species within the bounds of natural variation.	Met	All 19 selected wildlife species, except for black bear foraging in later terms, remain within the bounds of natural variation for the 2002 SMA.
To provide suitable marten habitat on the Romeo Malette Forest.	Partially Met	Cores sufficient in size; however, did not meet all habitat suitability requirements.
Social and Economic Matters		
Ensure that the available forest is protected from sustained deforestation or conversion to other uses and to ensure that a balance is maintained between utilization and rejuvenation.	Met	Forecast sustainable harvest and renewal levels. Continued FTG surveys and slash management set to minimize area lost to non-productive.
Supply industrial and consumer wood needs while maintaining forest sustainability (CFSA, PFSF) to realize a predictable, continuous, and consistent flow of roundwood from the Romeo Malette Forest.	Met	The 2002 SMA was able to provide target volumes for Term 1 for all species groups. Forecast declines in SPF volume may be partially offset by revised yield curves as current yields surpass planned. Forecast Po volumes exceed targets. Forecast Bw volumes are slightly below target but so was recent utilization.
Provide for a range of quality resource-based tourism and recreation opportunities in response to demand, while maintaining forest sustainability.	Met	Tourism and recreation uses of the Forest considered in the planning of forestry activities.
Recognize the First Nation needs as they relate to the ecosystem.	Met	Native values identified and considered in the planning process.
Develop and adopt an adaptive approach to ecosystem management with a built-in learning process.	Met	Tembec's planned operations consider ecosystem management, and are planned to be monitored for improvement.
To ensure all forest values are considered and forest users with respect to ecosystem management in forest decision-making and that consensus-building methods are used.	Met	During planning, good consideration of many forest values - consensus efforts evident among planning team and LCC.
Ensure best available science and appropriate inventories are used.	Met	2007-2009 CFMP used old inventory with some components of new, state-of-the-art inventory.
Work toward educating the public on forest ecosystems, objectives and management tools.	Met	Tembec's stakeholder outreach program and work with the LCC satisfy this objective.

Continued on next page.

Table 5 continued.

Objective	Audit Team's Assessment of Progress Toward Achievement	Comment
Values Dependent on Forest Cover		
Minimize the adverse affects on water and soil.	Met	CFMP includes measures to meet this objective.
Ensure the protection of other values on the land base.	Met	Planning for the protection of values was acceptable.
Establish and maintain representative, protected forest lands as part of Ontario's natural heritage.	Met	OLL lands in place and protected.
Silviculture		
Ensure the genetic diversity of trees is conserved.	Met	Silviculture strategies in place to meet objective.
Provide for the long-term health and vigour of Crown forests by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbance patterns and landscape patterns.	Met	Natural disturbance pattern emulation guidelines implemented during planning process.
Keep forest ecosystems productive.	Met	Silviculture strategies in place to meet objective.

3.7.2 Review of RPFO Assessment of Sustainability

Monitoring of forest sustainability under the 1996 FMPM is scheduled to occur when a plan is completed and the RPFO is compiled. The RPFO examines a suite of 14 indicators, compares the levels before and after the plan (and levels recorded in previous plans) and makes a determination as to whether the indicators were moving in a positive or negative direction with respect to plan objectives and forest sustainability.

The 2002-2007 FMP was the first prepared by Tembec under the 1996 FMPM. The Year Ten Annual Report, which now replaces the RPFO following the completion of the 2002-2007 FMP, will establish baseline levels for nine of the 14 indicators that will be used in the future for forest sustainability assessments. The other five indicators used in the development of the 2002-2007 FMP had baseline levels already recorded and could have been assessed for change with a 2007-2012 FMP, but the 2007-2009 Contingency plan did not require another assessment of these five planning indicators. The first opportunity for a reassessment of the planning indicators will be in conjunction with the preparation of the 2009-2019 FMP. In essence then, there will be no trend data for most of the 14 indicators used in the assessment of forest sustainability. While this is an artifact of the planning cycle, a new planning manual and the development of a contingency plan, MNR further confounded the assessment of sustainability by changing many of the 14 indicators to be monitored.

Suggestion 9: MNR should resist changes to the suite of indicators used to assess forest sustainability and only consider it for compelling scientific or social (in the case of local indicators) reasons.

One of the CFSA's guiding principles is the conservation of productive Crown forests and their associated ecological processes and biological diversity. Since ecological, social and economic benefits flow from a healthy forest, one would assume that the biological indicators (i.e., area of forest type and age, area of wildlife habitat, area of old growth, etc.) would receive more weight in sustainability determination than the percentage of forecast volume utilized by the mill. The 2004 FMPM provides no direction to this effect, leaving planning teams, district managers and regional directors to make their own determinations.

Suggestion 10: MNR should consider providing differential values for indicators reflecting the fact that some are more important than others in the assessment of sustainability.

The 1997-2002 RPFO included a good qualitative assessment of socio-economic changes during the term. The assessment identified that there was no socio-economic analysis in the 1997-2002 FMP, nor were demographic profiles created.

3.7.3 Review of the Comparison and Trend Analysis of Planned Versus Actual Forest Operations

Appendix C of the 2007 IFAPP requires the auditee to prepare a Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report (TAR or Trend Analysis Report) to provide an overview of changes to a management unit over time and a comparison of planned versus actual forestry activities across several planning terms. For the Romeo Malette Forest, the TAR was prepared by Tembec and spanned the period from 1992 to 2007, covering three planning terms for the Forest – the 1992-1997 TMP; the 1997-2002 FMP; and, the 2002-2007 FMP. The Trend Analysis Report was submitted in time and met the requirements of the IFAPP. It is appended to this report as Appendix A.

Since the creation of the RMF in 1983, a number of changes to its landbase have taken place. In its original form, the RMF totalled 3,565 km² whereas today the Forest is 6,031 km² in size. In 1987, 16 townships were added to the unit and four townships were removed. The last boundary change took place in 1989 with the further addition of 16 townships.

From 1992 through 2007 the total production forest decreased from 492,468 ha in 1992 to 468,092 ha in 2002. Reasons for the decrease include conversion from 1:15,840 mapping (based on the Lambert Conformal Projection) to the 1:20,000 OBM mapping system (based on the Universal Transverse Mercator Projection); a partial inventory update performed in the early 1990s; and, area withdrawals from the Romeo Malette Forest as a result of the OLL exercise. Also of note is the increase in non-forested land as a result of buffering single line features such as roads, creeks and power lines, effectively moving area from the productive forest land category into the unclassified lands category.

In 1992, the area of B&S and NSR forest land was 61,418 ha (12.5% of the total production forest landbase). At the start of the 2002-2007 FMP, this increased to 113,789 ha (24.3% of the total production forest landbase) with 54,188 ha B&S/NSR and 59,601 ha depleted. As an aside, the 2002 IFA cited this as a major problem with a recommendation to remedy the situation. As mentioned earlier in this report, Tembec and the MNR have resolved this problem.

Due to changes in forest unit definitions, comparison of area by forest unit is not possible across the three planning terms reported in the TAR. Changes in forest units between FMPs have been commonplace in Ontario, making landbase tracking over time difficult. Recently, attempts to standardize forest units should serve to alleviate this problem in the future.

For the Romeo Malette Forest in the 1992-1997 period, black and white spruce forest units were combined and then split into spruce 1 (site classes x, 1 and 2) and spruce 2 (site class 3). Pines were grouped in the same manner. Trembling aspen and balsam poplar were combined to form the poplar forest unit; white and yellow birch to form the white birch forest unit. Larch and cedar were grouped to form the other conifer forest unit. The 1997-2002 FMP included the following eight forest units: pure pine; pure poplar; pure birch; mixedwood; mixed conifer; spruce upland; spruce lowland; and, other conifer. For the 2002-2007 FMP, the 16 northeast region standard forest units were adopted.

Table 6 presents a comparison of planned and actual harvest volumes for the Romeo Malette Forest. Actual harvest volumes were lower than planned in the last two periods due primarily to the underutilization of planned hardwood volumes.

Table 6. Actual harvest volume compared to planned harvest volume for all species.

	1992-1997	1997-2002	2002-2007*
Planned Harvest (m³/yr x 1,000)	463.5	479.9	467.1
Actual Harvest (m³/yr x 1,000)	472.2	410.4	390.6
Actual Harvest/Planned Harvest (%)	101.9	85.5	83.6

* Actual harvest volumes for the first four years only.

Table 7 provides a comparison of actual to planned harvest volumes for the three periods for jack pine, spruce, poplar and white birch. Actual harvest volumes exceeded planned levels for jack pine in all three periods. For spruce, actual surpassed planned in the first two periods. Substantial underutilization of poplar and white birch was found across all three periods with the primary reasons for underutilization of poplar volumes related to production shortfalls at the OSB facility in Timmins.

Table 7. Actual harvest volumes compared to planned harvest volumes (%).

Species	1992-1997	1997-2002	2002-2007*
Jack Pine	129	112	156
Spruce	111	106	91
Poplar	71	64	60
Birch		<1	20

* Actual harvest volumes for the first four years only.

Table 8 presents planned and actual regeneration figures for each of the three periods, categorized as natural and artificial regeneration. The TAR describes a substantial shortfall in natural regeneration in the 1992-1997 and 1997-2002 periods as an outcome of improper recording of CLAAG area for these periods. In the 1992-1997 period, 5,558 ha of natural regeneration had not been recorded while the first three annual reports for the 1997-2002 term also did not record CLAAG area. The annual harvest was 61% of planned for the reported first four years of the 2002-2007 FMP. The TAR states the intent to report naturally depleted areas (also discussed in Section 3.4.3). Overachievement of planting levels also contributed to the decline in planned natural regeneration levels. Table 9 compares regeneration area to harvest area.

Table 8. Actual regeneration area compared to planned regeneration area.

	1992-1997	1997-2002	2002-2007
Natural Regeneration			
Planned Area (ha)	19,662	15,244	15,641
Actual Area (ha)	11,767	9,445	5,433
Percent	60	62	35
Artificial Regeneration			
Planned Area (ha)	10,068	6,203	7,535
Actual Area (ha)	8,318	7,286	8,082
Percent	83	117	107

Table 9. Actual regeneration area compared to actual harvest area.

	1992-1997	1997-2002	2002-2007	Total
Actual Harvest Area (ha)	16,685	17,925	15,890	50,500
Actual Regeneration Area (ha)	20,085	16,731	13,515	50,331
Regeneration Area as a Percent of Harvest Area	120	93	85	99.7

3.7.4 Achievement of Forest Sustainability

Prior to implementation of the CFSA, the objective of forest management was to provide timber to the forest industry in a manner consistent with sound environmental practices and to provide for other uses of the forest. With implementation of the CFSA in 1994, recognition was given to the importance of forest sustainability. It should be kept in mind that the means of achieving forest sustainability under the CFSA is through the management of forest cover. According to the CFSA, forest sustainability is defined as, "long term Crown forest health". Two key principles are associated with forest sustainability:

- Large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved.
- The long-term health and vigour of Crown forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values.

The methods of planning for and assessing the achievement of forest sustainability are described in the FMPM. It begins with an eight-step process that includes gathering background information, setting objectives and developing strategies, identification and analysis of management alternatives, selection of a preferred management alternative, and the identification of specific areas for forest operations. Throughout the process, opportunities are available to the public to participate and provide input into the development of the FMP. The assessment of achievement of forest sustainability involves the analysis of trends associated with a set of criteria and indicators of sustainability given in the FMPM.

Monitoring of forest sustainability under the 1996 FMPM is scheduled to occur when an FMP is completed and the RPFO compiled. The RPFO would look at a suite of 14 indicators, compare the levels before and after the plan (and levels recorded in previous FMPs) and make a determination as to whether the indicators were moving in a positive or negative direction with respect to FMP objectives and forest sustainability.

In developing its opinion on the achievement of forest sustainability on the Romeo Malette Forest the audit team considered the following:

- 2002-2007 FMP and 2007-2009 CFMP;
- Annual Work Schedules and Annual Reports associated with the above plans;
- Conclusions of the 1997-2002 RPFO;
- Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report;
- Input from staff of Tembec and MNR Timmins District and members of the Timmins LCC;
- Written input received from the public;
- Implementation and effectiveness of forest management activities viewed on the field sites.

Based on the information provided and the audit team's review of documentation and examination of the Forest, it is the opinion of the audit team that forest sustainability is being achieved on the Romeo Malette Forest, although improvement in some areas is required as described in the various recommendations and suggestions contained in this audit report. Table 10 provides a summary by forest sustainability criteria of the audit team's assessment of forest sustainability.

Table 10. Summary of assessment of forest sustainability.

Forest Sustainability Criteria	Status	Audit Team Comments
Biological Diversity	Partially Met	Forest unit retention being maintained. A variety of wildlife habitat types for selected species forecasted to remain well represented on the Forest. Weakness in meeting white and red pine targets. Marten core habitat suitability low.
Forest Condition and Ecological Productivity	Met	Forest condition not adversely impacted through management activities. Renewal activities planned and implemented to ensure ecological productivity.
Soil and Water Quality	Met	Harvest and renewal planning and implementation are performed in a manner that protects both soil and water quality.
Multiple Benefits to Society	Met	Array of forest benefits considered and protected during planning and implementation of forestry activities.
Accepting Society's Responsibility for Sustainable Development	Met	Public concerns considered in forest management planning process. Forest planning based on sustainability test.

3.8 Contractual Obligations

3.8.1 Contractual Obligations – Tembec Industries Inc.

Wood Supply Commitments and Overlapping Licences

Appendix E of the SFL document lists the wood supply commitments for the Romeo Malette Forest. In 2004, the Northern Aspen Veneer Initiative Letter rationalized changes to poplar veneer commitments across northern Ontario. On May 5, 2006, the Romeo Malette Forest SFL Appendix E wording was updated regarding Norbord Industries Inc.'s veneer commitment. Appendix E noted that Tembec, "must enter into and execute the memorandum of agreement [MOA] within six months of the amendment of this licence" (i.e. by November 2006). At the time of writing this report an MOA was still not in place, but a draft had been agreed upon by Tembec and Norbord Industries Inc. which is to be signed and executed in the near future. However, committed volumes of wood did flow to Norbord Industries Inc. until mill strikes and shutdown disrupted wood flow (discussed below).

Table 11 summarizes wood supplied to commitment holders up to 2005-2006 (figures for the final year for Grant and Columbia Forest Products was available at the time of writing this report). Annualized values give an indication of actual accomplishment. Norbord Industries Inc. received almost three-quarters of its commitment while Grant received just over one-third and Columbia Forest Products received only a fraction. In the 2005-2006 AR, Tembec lists several reasons for under-achievement of wood supply targets including: over-estimates of hardwood yield curves; a strike at the Grant mill; not accessing some areas due to high birch content; and, deferral of areas past a large bridge that needed extensive repair. Also, a lack of pricing agreement between Tembec and Grant was noted as causing issues related to the harvesting of birch during the period.

Norbord Industries Inc. indicated that the shortfall of poplar veneer was most pronounced in the final two years - 90% of the 13,966 m³ total shortfall. This coincides with the general downturn of the forest industry and strikes and closures of local mills that occurred during this time. Significant unplanned repairs to the Kenogamissi Falls Bridge was also a factor in delaying access to a number of blocks during the summer of 2006. The audit team believes that the Norbord Industries Inc. commitment could have been met in the absence of these external factors.

Norbord Industries Inc. also noted a very slow delivery of wood after cutting. Records indicate that some veneer-grade poplar logs were not delivered until one to two years after cutting. Long delays in delivery resulted in poorer veneer wood quality for Norbord Industries Inc. and did not meet the intent of the wood supply commitment. Figure 12 identifies poplar veneer wood harvested from Block 84 of the RMF in the summer of 2006 and delivered to Norbord Industries Inc. on August 22, 2007. The audit team understands that wood

delivery is often delayed for a number of valid reasons, but delays should be minimized and delays beyond one year should not occur.

Recommendation 25: Tembec must ensure that wood deliveries, particularly of veneer-grade wood, are expedited.

Table 11. Wood supply commitment on the Romeo Malette Forest.

Company		Total	Annualized
Grant Forest Products Inc.	Commitment (m ³)	588,800	117,760
	Delivered to 2005-2006 (m ³)	207,197	41,439
	Percent (%)		35.2
Norbord Industries Inc.	Commitment (m ³)	54,180	10,836
	Delivered to 2005-2006 (m ³)	40,214	8,043
	Percent (%)		74.2
Columbia Forest Products	Commitment (m ³)	12,500	2,500
	Delivered to 2005-2006 (m ³)	38	8
	Percent (%)		0.3



Figure 12. Wood harvested in the summer of 2006 and delivered to Norbord Industries Inc. in August 2007.

The audit team was surprised at the minimal amount of birch veneer grade logs sent to Columbia Forest Products during the audit term. In the field there were several examples of veneer grade birch left standing and some that were cut and left at the stump or at roadside that could have been sent to Columbia Forest Products. Difficulty in marketing the remaining portion of birch stems, exacerbated by a birch price disagreement with Grant during the audit term, was one of the main reasons given by Tembec for this under-achievement; however, Tembec staff also noted that it was difficult to arrange for the load and haul of sporadic quantities of birch veneer logs. Beyond the technical difficulties noted, the audit team noted a lack of urgency felt by Tembec and Columbia Forest Products personnel that this commitment be met, despite Columbia Forest Products' insistence that they are in need of as much veneer as possible.

It was noted that the 2007-2009 CFMP reduced the forecast birch veneer recovery percentage from 10% to 2%. This resulted in a reduced forecast of birch veneer being sent to Columbia Forest Products in the 2007-2009 CFMP versus the 2002-2007 FMP (586 m³/yr and 2,500 m³/yr respectively). This new forecast is thought by Tembec and Columbia Forest Products to be a better reflection of quantities actually available on the Romeo Malette Forest. Regardless, the significant shortfall of actual birch veneer grade logs sent to Columbia Forest Products during the 2002-2007 term concerns the audit team, particularly in light of the number of mill closures that have occurred in the last few years.

Recommendation 26: Tembec must make continuous attempts to meet the Columbia Forest Products wood supply commitment.

Specified Procedures Audit

The audit team conducted an assessment of 17% of the projects funded under the Renewal Trust Fund for the fiscal year 2005-2006. The assessment determined that the maps, records and field work associated with the Forest Renewal Trust Account expenditures for 2005-2006 were accurate and that the fieldwork was appropriate to the site conditions.

Silviculture Standards

At the time of signing the SFL, the company becomes responsible for some areas harvested that have not yet met FTG standards. In the case of the Romeo Malette Forest, the SFL classed lands into Category 1 (Class A or C lands) and Category 2 (Class B or D lands). The company must meet silvicultural standards on Category 2 lands and Category 1 lands must be mapped and documented. The original maps produced at the time of signing the SFL, showing the various land classes, were shown to the audit team. However, neither MNR nor Tembec had area summaries of these original land classes.

At the request of the audit team, Tembec constructed a summary table showing the current amount of lands in each category by using the original maps and matching the new inventory shape files to them. The resulting summary table shows 770.3 ha of Category 1 lands and 1,533.1 ha of Category 2 lands which are Tembec's responsibility to bring to FTG status. Three other categories were also described to identify additional areas. Category 3 lands (5,414.3 ha) were areas which were FTG in the FRI for the 2007-2009 CFMP; however the new interpretation identifies them as not FTG. Tembec intends to resurvey Category 3 areas to confirm whether the new inventory labels are correct and to decide whether treatment will be done. Category 4 lands include 11,607.4 ha of B&S stands identified in the new FRI. Category 5 lands include 638.3 ha of older pre-1994 fires which may be possible Forestry Futures projects.

The 2002-2007 FMP forecasted 19,920 ha to be assessed for regeneration success during the term of the plan. Summation errors were found in the ARs making the total area assessed to date and the total area successfully regenerated higher than forecasted. The corrected total of 15,560 ha was assessed in the first four years, of which 12,930 ha or 83% is FTG.

The audit team examined a number of FTG sites during the field site visits. These areas were mapped and reported correctly. The trees met the FTG standards for height and stocking and stand descriptions were accurate. The new FTG stand descriptions were used to assist the FRI updating. Eligible areas which do not

meet FTG standards are retreated by either tending or planting and/or monitored until they reach FTG status and are surveyed again.

Payment of Forest Charges

As a condition of timber harvest, Tembec is required to pay Ontario Crown charges and Forestry Futures charges. The audit team received confirmation from the Financial Planning, Accounting and Control Section of MNR that these charges were paid during the term of the audit. Annual area charges were set to zero for the duration of the audit term.

Planning, Reporting, Information Supply and Utilization Requirements

The planning activities for the audit term met the requirements of the CFSA and associated manuals (e.g., FMPM and FIM), except for the deviations noted in the audit report. Adequately addressing the planning recommendations is sufficient to ensure compliance with the SFL.

Utilization viewed during the field site visits was good for most species on most sites, particularly conifer dominated areas. Birch is still an issue and the audit team believes that there is room for improvement in utilization, primarily on mixedwood sites and on conifer sites with pockets of hardwood. Compliance reports during the term did not indicate a utilization problem and a recommendation is made in Section 3.4.2 to improve the assessment of utilization.

The audit team noted that merchantable timber was often used as corduroy road fill during the audit term. Tembec staff suggested that stumpage dues were only paid when spruce is used as corduroy. MNR confirmed that stumpage had not been paid on trees used in corduroy during the term. Stumpage must be paid for all merchantable timber harvested on Crown land and a recommendation is made.

Recommendation 27: Tembec must pay stumpage dues on all merchantable timber harvested on Crown land including trees used for road corduroy.

Salvage Harvesting

An amendment was approved to complete salvage of a small fire during the 2002-2007 term, but no salvage was completed. According to Tembec staff, the Tembec mill first indicated interest in salvaging the area, but following approval to salvage, declined, noting the small area affected.

Although the area affected by this approval was inconsequential during the audit term, this situation prompted the audit team to review the SFL document to determine whether MNR could re-assign salvage areas that have been approved for operation by the SFL holder. There does not appear to be a mechanism in place to dissolve an approval. The audit team believes that the addition of a revocation mechanism would provide the legal basis for MNR to dissolve approvals and eliminate any ambiguity. This should not be a reason for delaying the recovery of damaged timber and a suggestion is made.

Suggestion 11: Corporate MNR should consider adding a mechanism to legal documents that allows for the revocation of salvage approvals when necessary.

Performance Reviews

An IFA was conducted in 2002 for the term 1997-2002. An audit report was produced and an audit action plan was developed by Tembec and MNR to address the audit recommendations. Section 3.8.2 discusses this topic in detail.

Forest Renewal Trust Account

The Forest Renewal Trust Account minimum balance of \$2,274,400 on March 31 was met in all but the last year of the audit, at which point it was approximately \$439,000 below minimum balance requirements. Low harvest

levels on the Forest have resulted in reduced contributions to the Account, since contributions are based on the volume harvested. At the same time, spending on silviculture continued, resulting in a net shortfall.

In recent years there has been a general trend towards lower cost silviculture treatments including more reliance on natural regeneration across Ontario. There was evidence in this audit to indicate that Tembec is moving in a similar direction on the Romeo Malette Forest. The lack of evidence to support or contest the impacts of this trend is cause for concern. Recommendation 24 in this report was provided to address silviculture concerns, including this one.

Additionally, the inability of Tembec to maintain the minimum balance is also cause for concern. Although the fundamental construct of the Forest Renewal Trust was to provide certainty for forest renewal, creative means to return the underfunded account to its required minimum balance are necessary, given the financial situation facing the forest industry. The audit team sees this as a shared responsibility of both Tembec and the MNR. While the parties have been attempting to resolve the situation, the continuing shortfall is an issue that requires resolution. To provide for greater degrees of certainty, a timeline is included for the resolution.

Recommendation 28: MNR and Tembec must, by October 31, 2008, develop a fair and effective means of returning the Forest Renewal Trust Account for the Romeo Malette Forest to its required minimum balance.

Withdrawals

Land withdrawals for OLL adjustments were noted in the SFL and 2007-2009 CFMP. No compensation was required for any land withdrawals.

Aboriginal Opportunities

Tembec and MNR consulted with Aboriginal communities. Communication between Tembec, MNR, and a number of Aboriginal communities resulted in Aboriginal values information being collected by the communities. Additionally, Tembec made up to 30,000 m³/yr available to Mattagami First Nation for harvesting. This resulted in approximately 10-13 jobs for a community that includes approximately 250 people on-reserve. Significant resources were required of Tembec to ensure this occurred. In addition, Tembec made a region-wide commitment to provide harvest opportunities to Taykwa Tagamou Nation. However, these were never implemented on the Romeo Malette Forest due to the great distance between the Forest and the community.

At a time when the forest sector economy is poor, Tembec's efforts should not be understated. One Aboriginal representative revealed that his community was grateful for the respect that Tembec and MNR had shown. The audit team notes that both Tembec and the MNR have been supportive of Aboriginal initiatives.

Compliance Planning and Monitoring

Section 3.6.1 of this report includes a summary of the compliance monitoring program completed during the term. Required compliance plans were in place and the high compliance rate for the audit term was noted as being largely a result of staff/contractors following procedures developed for Tembec's EMS, including participation in the extensive training program. One problem noted by the audit team was that block suspensions were not used as required during the term. Thus, a recommendation is made to MNR and Tembec in Section 3.6.1.

Operations on Mining Claims

No issues were found respecting operations on mining claims.

3.8.2 Actions Associated with the 2002 Independent Forest Audit

A total of 17 recommendations (including licence non-extension) were made in the 2002 IFA report. In conducting its review of the actions developed to address the recommendations, the audit team assessed whether planned actions were consistent with the intent of the original recommendation, appropriate to address

the recommendation, that the actions taken were those described in the approved action plan, and that the actions taken were effective. Table 12 indicates the status of the recommendations from the 2002 IFA, in the audit team's opinion.

Table 12. Assessment of achievement of the 2002 IFA recommendations.

Recommendations from the 2002 Romeo Malette Forest IFA	Summary	Assessment
1. The MNR should ensure that Grant Forest Products be given the opportunity to be represented on the planning team for the Romeo Malette Forest 2007 FMP.	Grant was represented on the planning team by the hardwood users group during production of the 2007-2009 CFMP.	Complete
2. The Company must complete surveys on the barren and scattered, not-sufficiently-regenerated, and depleted areas that are considered backlog as of 2004 sufficient to: - provide updated information on the FTG status information on all stands, and; - provide proper stand descriptions for areas classified as FTG. The information must be incorporated into the forest inventory and used in the preparation of the 2007 FMP.	Substantial effort was made to complete all five parts of the action plan. A total of 60,142 ha were aerial surveyed (58,311 ha were FTG and 1,831 ha were NSR) and an additional 21,134 ha were updated from previous survey reports. Regular FTG survey programs were completed in 2002, 2003, 2004, and 2005 with the 2005 AR-14 reporting 15,624.97 ha surveyed to date. All FTG information was updated in the FRI and included in the AR as per FIM. The B&S and/or depleted area was updated and now stands at 9.3% of the entire productive forest. Tembec and MNR met to discuss findings of audits and an updated planning inventory was provided to MNR district office on Jan. 12, 2006.	Complete
3. Within one year of the date of submission of the final report for this audit the Company MUST prepare a plan to re-inventory the Romeo Malette Forest such that the FRI to be used for the preparation of the 2012 FMP will meet the requirements of the Forest Information Manual. The plan must set measurable annual targets so that progress implementation can be evaluated.	Company developed and implemented a plan to re-inventory the Forest. A new state-of-the-art FRI was completed and approved during the audit term for use in development of the 2009-2019 FMP. Tembec is commended for vastly improving the inventory of the RMF; a Best Practice has been given for the work.	Complete
4. The Company should review natural depletion evidence and revise the rates of natural depletion in the next plan.	This action is not yet completed because of the decision to develop the two-year contingency plan. New information was reviewed and is expected to be incorporated into relevant sections of the 2009-2019 FMP.	Delayed to 2009-2019 FMP
5. The Company should develop a strategy for the management of mixed woods for the Romeo Malette Forest within one year of the date of submission of the final report for this audit. Implementation of the strategy should begin within the current plan period.	Tembec has initiated work to complete a mixedwood strategy on several fronts. A first draft of its strategy has been prepared using this work and was included in the 2007-2009 CFMP.	Partial
6. The MNR should conduct stick nest surveys with sufficient frequency to ensure that up-to-date information is available for use in planning and implementation of annual forest operations.	The required stick nest surveys were conducted in 2005.	Complete

Continued on next page.

Table 12 continued.

Recommendations from the 2002 Romeo Malette Forest IFA	Summary	Assessment
7. The Company should extend the scope of its slash pile management program to cover all sites.	Slash management is still an issue on the RMF, particularly on lowland sites. Recommendation 18 addresses this concern. In other areas some piling of slash had been done but the audit team was concerned with the lack of clear provincial direction and provides Recommendation 19 accordingly.	Partial
8. The Company should strive to achieve or exceed the maximum pre-commercial thinning level specified in its jack pine strategy – 500 ha over the 2002-2007 period – and achieve or exceed 1000 ha of commercial thinning during the same plan period, which is the maximum target in the strategy.	Two of four action items are completed. To complete the other two action items, a trial for commercial thinning was initiated with the Forest Research Partnership and approved by Northeast Science and Information. Commercial thinning was started in April 2003 but not completed because of high logging costs (including the requirement to pay forest renewal charges) and low sawlog yield associated with a commercial thinning operation. The new FRI has shown jack pine fibre supply to be sound.	Partial
9. The Company should review the areas tended by aerial spray in the year 2000 to determine the effectiveness and the possible need for further treatments.	Monitoring improvements are needed towards a systematic approach to ensure no areas are missed and that the conifer is maintained. Recommendation 24 is provided in consideration of this concern. Action item 9-1 is still ongoing.	Partial
10. The Company should ensure that bridges used in the forest are engineered to minimize sedimentation problems.	Sediment control was improved. However, one bridge viewed during the audit still had the potential to introduce sediment into waterbodies as a result of gaps between the deck and the rails. Recommendation 21 addresses this matter.	Partial
11. Within one year of the date of submission of the final report for this audit the Company should have in place and be implementing a system to undertake pre-harvest inspections of sites where natural regeneration is the prescribed treatment.	Tembec tried quick cruise setting cards starting April 2003 to verify the FRI stand list information. To date 6,498 ha have been quick cruised. It was determined that insufficient information was collected to develop silviculture treatment prescriptions using this method. In 2004, 2005 and 2006, Tembec did post-harvest careful logging surveys for black spruce forest unit areas the summer following harvest. They had been doing these on forests to the north since 1990 and found them helpful to determine whether follow-up treatments were needed to regenerate a site. Tembec has abandoned the quick cruise method for developing mixedwood silviculture prescriptions. Prescriptions are being developed according to the Mixedwood strategy. Tembec has not been doing any pre-cut inspections on pure hardwood sites since they believe that the success of natural hardwood regeneration in pure sites is impacted more by timing of harvest and harvest method than pre-harvest information.	Incomplete

Continued on next page.

Table 12 continued.

Recommendations from the 2002 Romeo Malette Forest IFA	Summary	Assessment
12. The Company should provide more details in its FOCIS ²⁹ reports. The details should include more comprehensive written descriptions, photos, and maps showing the area of inspection.	FOIP reports completed by Tembec were normally very comprehensive.	Complete
13. The Ministry's review of FOCIS should include a review of FOCIS training, reporting, terminology, and use of hardware and software.	FOCIS was replaced with the FOIP program which requires certification training for inspectors. Training focuses on completing comprehensive reports and utilization of the software program which is web-based.	Complete
14. The Company should check the actual harvest and pre-commercially thinned area data in the Annual Reports and Report of Past Forest Operations and revise them as required.	Review showed revisions have been performed.	Complete
15. The Company should continue to make use of research, PSP ³⁰ data, scaling returns, and careful designation of forest units to improve growth and yield estimates.	This action is not yet fully completed because the 2007-2009 CFMP used the 2002-2007 FMP SFMM model. The 2009-2019 FMP is expected to incorporate new yield curves using new FRI, and current permanent sample plot and harvest block volume data.	Delayed to 2009-2019 FMP
16. Term of the Sustainable Forest License for the Romeo Malette Forest should extend from April 1, 2003 to March 31, 2018.	Communication was received showing that this had occurred.	Complete
17. The next audit for the Romeo Malette Forest should be held in 2005. That audit should pay particular attention to the state of the forest inventory and the disposition of barren and scattered, NSR, and depleted lands.	Interim audit was not performed partially since FRI was not expected to be complete until 2007. 2007 IFA found the new inventory to be state-of-the-art and extensive work to have been completed on the deposition of B&S, NSR, and depleted lands.	Incomplete

4.0 Summary of Conclusions and Recommendations

This section provides a summary of conclusions and recommendations of the 2007 Independent Forest Audit of the Romeo Malette Forest. Table 13 provides a summary, by responsible party, of the number of recommendations, suggestions and best practices identified during the audit. A complete list is given in Table 14.

Table 13. Summary of recommendations, suggestions and best practices by responsible party.

	Tembec	MNR	Tembec and MNR	LCC	Total
Recommendations	15	7	7	-	29
Suggestions	2	6	2	1	11
Best Practices	2	-	-	-	2

²⁹ Forest Operations Compliance Inspection System, the predecessor to FOIP.

³⁰ Permanent sample plots.

Commitment

The Commitment principle was not included in this IFA since Tembec Forest Industries Inc. has received FSC certification for its work on the Romeo Malette Forest (FSC Certification Code: SW-FM/COC-1366, November 18, 2004).

Public Participation

The Timmins LCC was active and effective in addressing its legislated mandate during the audit term. Everyone interviewed indicated that sufficient resources were available, and that MNR and Tembec supported the LCC with relevant background information. Advice offered by the LCC was considered by the District Manager and planning team.

The audit team noted many positive aspects of the LCC. The LCC participates on two forests - the Romeo Malette Forest and the Nighthawk Forest. While this creates extra work, it also allows the LCC members to broaden their experience and share knowledge and capacity between the two Forests.

The diversity of stakeholders on the LCC is also a benefit. It allows a cross-pollination of ideas and allows the LCC to expand its scope to discuss issues such as mining and other land uses. At the end of each LCC meeting, participants would assess their satisfaction with the meeting. This evaluation of meetings shows an innovative method to ensuring member participation.

During preparation of the 2002-2007 FMP, Grant Forest Products Inc. (Grant) requested an individual environmental assessment under the Environmental Assessment Act (bump-up) (Section 3.2.2). The request was made due to concerns regarding the available aspen-poplar volume from the Forest.

On May 15, 2002, the MOE closed the assessment case based on the agreement between Grant, Tembec, and MNR on a protocol to assess the validity of Grant's concerns (the withdrawal protocol), and based on Grant's official withdrawal of the bump-up request.

Although public consultation for a CFMP may be abbreviated, the Romeo Malette 2007-2009 CFMP proposal identified a public consultation schedule that met the full requirements of the 2004 FMPM, except for stage 2. Stage 2 of consultation was not required because the approved strategic direction from the 2002-2007 FMP was carried forward as Long-Term Management Direction for the 2007-2009 CFMP.

The issue resolution process was requested on the last day permitted by the FMPM (December 5, 2006). The Regional Director's response of January 17, 2007 officially closed the case. The audit team's conclusion is that the appropriate issue resolution process was followed.

Five First Nations or Aboriginal communities were identified to the audit team as having some interest in the Forest. These include Mattagami First Nation, Matachewan First Nation, Wahgoshig First Nation, Taykwa Tagamou Nation, and Flying Post Reserve. All First Nations were sent a variety of notices regarding consultation and participation on the planning team. A draft, customized consultation protocol was developed between MNR and Mattagami First Nation. Several First Nations chose to have representation on the CFMP planning team and/or LCC meetings and indicated that they had a good working relationship with MNR and Tembec. Interviews also revealed that Tembec has an effective consultation program.

Although the CFMP proposal did not require such, Aboriginal Background Information Reports were prepared for Mattagami and Wahgoshig First Nations, and an abbreviated Report on Protection of Identified Aboriginal Values was prepared for all Aboriginal values. The location and nature of the Aboriginal values were kept confidential by the communities. Wahgoshig, Mattagami, and Matachewan First Nations reviewed the draft plan with the help of Mattagami First Nation's GIS technician in order to ensure that operations did not infringe upon their values.

Both organizations are committed to Aboriginal consultation; MNR is committed through the CFSA, and Tembec is committed through its FSC certification. Both organizations recognize the FMP process. In order to combine the two organizations' well-intended motivation into a single, effective effort, the audit team makes a suggestion. The premise to acting on the suggestion is for Tembec and MNR to move past their stakeholder positions and learn about one another's motivation and values regarding Aboriginal consultation.

Two recommendations were provided to the MNR; one regarding LCC Terms of Reference updating and one to improve aerial spray notices.

Forest Management Planning

The 2007-2009 CFMP planning team functioned well. It had adequate representation and members brought sufficient local knowledge and experience to the table. A past recommendation to include Grant on the planning team was addressed. Sufficient methods were used to communicate with the public.

Tembec initiated contact with resource-based tourist outfitters with letters to 14 different outfitters inviting them to review background information and participate in the development of RSAs. Four responses were received by Tembec, indicating interest in pursuing RSAs. One RSA was developed and signed. A recommendation was given for MNR to support further RSA development.

The Romeo Malette Forest FRI was identified as a major failing in the 2002 IFA. Extra scrutiny of the new inventory was afforded in this audit. Tembec developed a new FRI which incorporated a combination of multi-spectral digital ortho-photography and LIDAR technology. Field work was completed simultaneously with image acquisition. MNR completed quality control on field work and interpretation products. The FRI was completed in August 2006 and approved by MNR two months later. Subsequently, the planning inventory for the development of the 2009-2019 FMP, which included the new FRI, was approved for use in February 2007. The new FRI was found to be state-of-the-art and will vastly improve strategic and operational planning in the 2009-2019 FMP. A Best Practice was given for the FRI.

A spatial analysis of habitat for the American marten was conducted in conjunction with the 2002-2007 FMP in order to provide the planning team with an idea of where the current core habitat for these provincially featured species was and how the core areas would change over time with forest management. Ten core areas of suitable sizes were identified on the Forest with the total suitable habitat of 11.8 %, within the 10%-20% suggested by the guidelines.

As a Contingency Plan, the 2007-2009 CFMP carried forward the objectives, strategies, and targets of the previous FMP. Some strategies were prudently updated to reflect new policy direction, such as the natural disturbance pattern emulation guide, and RSAs. Some outstanding recommendations from the 2002 IFA remain relevant and are carried forward in a recommendation in this report.

A stick nest survey was conducted over areas proposed for harvest in the last years of the 2002-2007 FMP in response to a 2002 IFA recommendation. Areas proposed for operations in the 2007-2009 CFMP were surveyed for stick nests while coincidental checks on previously identified nests were conducted.

The collection of Aboriginal values for the 2007-2009 CFMP involved two major initiatives: memoranda of understanding were signed between MNR and Mattagami and Matchewan First Nations for the collection of Aboriginal values, the creation of background information reports, and reports on the protection of identified Aboriginal values; and, the planning team participation of representatives of four of the five First Nations whose traditional areas were affected by the CFMP. Since one of the objectives of contingency planning is to reduce issues, allocations in areas where concerns were expressed by the First Nations representatives were dropped by Tembec.

Road planning for primary roads was consistent with the requirements of the 2004 FMPM. The continuation of the existing Musgrove Main Road included two alternatives and the corresponding analysis. Roads planning complimented the harvest scenario.

The field site visits showed that the silvicultural treatment packages within the SGRs for the Romeo Malette Forest were complete and suitable to the sites audited. Renewal and tending forecasts were developed to achieve management objectives. The levels of these operations were also consistent with the projected levels for the selected management alternative.

The 2002 IFA included a critical recommendation requiring the completion of substantial FTG updates. A total of 60,142 ha were aerial surveyed (58,311 ha were FTG and 1,831 ha were NSR) and an additional 21,134 ha were updated from previous survey reports.

Review and approval of the 2007-2009 CFMP met the requirements of the Terms of Reference and the 2004 FMPM, except for the reasonable deviations noted in this report. The plan was approved in sufficient time for operations to begin on April 1, 2007. Presentations to three Aboriginal communities occurred in September. Reviewers of the CFMP were aware of plan content since many were also planning team members or advisors.

A contingency plan was developed for the 2007-2009 term to allow time for completion of a new FRI. The CFMP was completed and approved on time to allow operations to commence April 1, 2007 and most facets of the document were complete and followed direction in the contingency plan proposal and the FMPM. However, there were a few exceptions. As noted in Section 3.7, it is not clear that the contingency proposal or the MOE endorsement directives were adhered to fully. Very little contingency area from the 2002-2007 FMP was used in the CFMP and in some cases the areas selected for harvest deviated from the AHA by age class. Also, the number of issues that transpired during the development of the CFMP suggests that MOE direction to not include highly contentious areas was not fully appreciated.

The CFMP text did not cover all topics as required. As noted in Section 3.7, selection criteria were not fully discussed. In addition, changes to eligibility were not fully discussed in the text. Section 3.5 also had minor omissions. For example, the roads planning section did not reference sections of the supplementary documentation that contain full roads documentation or maps as required. Tembec and MNR are responsible for ensuring all documents are completed as per manuals and other direction. The audit team does not believe that the 2007-2009 CFMP should be altered at this time but makes a recommendation to ensure the 2009-2019 FMP contains all required components and that operations follow the strategic direction.

For the most part, AWSs were consistent with the 2002-2007 FMP and contained most of the required components. Some inconsistencies were noted in late vintage AWSs that were corrected in subsequent years. Several recommendations to address AWS shortcomings are given.

Plan Implementation

The audit team observed a wide variety of AOC prescriptions in the field site visits and found that AOC prescriptions followed specific direction within a guideline where that was available. For other cases, values were afforded adequate protection and prescriptions were appropriate for the site conditions encountered.

A sample of harvest activities for each year of the audit term were examined by the audit team. The sample included operations by each contractor operating during the term on a variety of site types through all seasons. There were a few non-compliances consisting of small trespasses; however, in general boundary control was noted by the audit team to be very good. The new FRI combined with the use of GPS technology increased the precision of base features and will further aid boundary marking in the future.

The audit team was pleased to note that site disturbance was almost non-existent during the site visit. Considering the winter harvest and fine-textured soils that are common on the Forest, this was noted as exceptional and recognized with a Best Practice.

MNR compliance audits have included residual tree surveys that indicate the retention of excessive numbers of trees on some sites. Although not clear in these examples that all trees tallied were of merchantable size, the audit team notes that utilization must be correctly gauged in the future to ensure compliance with the Scaling Manual and FMP. Accordingly, a recommendation is provided.

Although most of the harvest prescriptions viewed were appropriate for the actual site conditions encountered, a few exceptions were noted. These are addressed in the report with a recommendation to maintain the conifer component and, where relevant, the white spruce component in the renewed forest.

The second noted exception to appropriate and effective prescriptions was the widespread use of CLAAG for all lowland sites. CLAAG is only appropriate where abundant spruce understory trees and suitable seedbed is available post-harvest. In some areas viewed during the audit very few residual trees were noted and/or residual trees consisted mainly of larch, cedar or balsam fir. A recommendation to prescribe CLAAG only on appropriate sites is included.

The last prescription that was noted as questionable was the extensive treatment of upland sites within lowland complexes. Although the preferred treatment for these stands is usually intensive, Tembec normally chose natural regeneration, citing access constraints and cost as reasons for not completing artificial renewal treatments. To improve chances of regaining pre-harvest conifer on these sites a recommendation is provided.

Despite a recommendation for slash reduction in two successive IFAs, slash management remains a concern on the Forest. This was most prevalent on the lowland blocks viewed where slash covered significant areas of productive land and a recommendation was given to address this matter. Other areas also presented opportunities to re-capture productive area losses through improved slash management, albeit to a far lesser degree. A lack of clear provincial direction was of concern to the audit team and a recommendation was provided.

The audit team observed a variety of silvicultural treatments that were implemented on the Romeo Malette Forest during the audit period including mechanical site preparation, tree planting, aerial seeding, aerial and ground chemical tending and natural regeneration. Renewal activities and SGRs were approved in the FMP and the AWSs, consistent with the FOPs, and were generally appropriate and effective for the specific site conditions. The renewal activities were also consistent with information included in the annual reports. Evidence of inadequate monitoring was seen and a recommendation was offered to deal with the concern.

Examination of a sample of road construction, maintenance and water crossings was completed and found to have been accomplished according to the 2002-2007 FMP and compliant in most cases. Road construction and maintenance through roads funding was apparent. However, the audit team did witness problems with insufficient cross drainage installations where natural water flows had been impeded. A recommendation to correct this concern is provided.

During the field site visits the audit team also found a problem with the compromising of an AOC due to inappropriate road construction. The audit team noted a tertiary road in a recent harvest area, which terminated at the edge of and perpendicular to a 30 m reserve on a small lake. Presumably subsequent to the harvest, a wide, trail was created through the AOC to access the lake. A recommendation follows for the development and implementation of an operating procedure to ensure that new road construction does not facilitate vehicular access into AOCs that protect unknown fisheries values.

Two suggestions are provided to remedy problems found with the rehabilitation of aggregate pits; one to MNR and one to Tembec.

Systems Support

The Human Resources criteria of the System Support Services principle was considered to be met since Tembec Forest Industries Inc. has received FSC certification for its work on the Romeo Malette Forest (FSC Certification Code: SW-FM/COC-1366, November 18, 2004). Therefore, this IFA did not audit the associated protocols.

Both Tembec and MNR were found to appropriately manage relevant forest management data. Records were up-to-date and well done.

Monitoring

MNR and Tembec had strategic and annual compliance plans in effect during the audit term and completed compliance inspections in each of the operating years during the audit. Tembec produced a five-year strategic compliance plan for the 2002-2007 FMP and a two-year strategic plan for the 2007-2009 CFMP as well as annual compliance plans for each AWS. These plans met the requirements of the Guideline for Forest Industry Compliance Planning (Compliance Guide). The level of compliance inspections completed by MNR and Tembec during the audit term was appropriate and a full compliment of forest operations was checked.

Contrary to the Compliance Guide, block suspension compliance inspections were not performed and reported. A recommendation is provided to address this matter.

Tembec used a number of different surveys to assess the survival and growth of the regenerating forest including tree planting quality assessment plots, plantation assessment plots and post harvest surveys. Tembec has also established 15 Forest Regeneration Plots on the Romeo Malette Forest since 2002 with the purpose of monitoring forest regeneration through time, including forest health, out-plant performance, and treatment types.

The annual reports from 2002 to 2006 were examined. The reports were generally found to be complete and accurate, with discrepancies as noted, and included discussions of results and emerging trends in terms of progress towards achieving targets identified in the FMP.

The 1997-2002 RPFO was reviewed for this audit. The RPFO examined the planned versus actual levels of operations including depletion, wood utilization by licensee, natural depletions, renewal and tending (maintenance), primary and secondary road construction and maintenance. Reasonable explanations were provided for differences between planned and actual levels of achievement. The report discussed the necessary issues for the period including recommendations from the 2002 IFA and actions taken by the Company were discussed. The Achievement of Management Objectives is also discussed, including forest harvest, silviculture, biodiversity, environmental and socio-economic objectives. Each of these included targets which were described as met, not met, or partially met and the reasons why.

Achievement of Management Objectives and Forest Sustainability

The methods of planning for and assessing the achievement of forest sustainability are described in the FMPM. It begins with an eight-step process that includes gathering background information, setting objectives and developing strategies, identification and analysis of management alternatives, selection of a preferred management alternative, and the identification of specific areas for forest operations. The assessment of achievement of forest sustainability involves the analysis of trends associated with a set of criteria and indicators of sustainability given in the FMPM.

In developing its opinion on the achievement of forest sustainability on the Romeo Malette Forest the audit team considered a suite of documentation, input from staff of Tembec and MNR Timmins District and members of the Timmins LCC, written input received from the public, and evidence gathered from examining a sample of field sites where activities had occurred during the audit period.

Based on the information provided and the audit team's review of documentation and examination of the Forest, it is the opinion of the audit team that forest sustainability is being achieved on the Romeo Malette Forest, although improvement in some areas is required as described in the various recommendations and suggestions contained in this audit report.

Contractual Obligations

A component of the IFA requires review of the SFL with an assessment of Tembec's compliance with that licence. Appendix E of the SFL document lists the wood supply commitments for the Romeo Malette Forest. Some commitment holders received significantly less volume than outlined in their respective commitments. A number of reasons for the under achievement were provided in the 2005-2006 AR, including external factors. One commitment holder however, noted a very slow delivery of wood after harvest. Long delays in delivery resulted in poorer veneer wood quality and did not meet the intent of the wood supply commitment. The audit team addressed this matter with a recommendation to Tembec.

The audit team found that a minimal amount of birch veneer grade logs had been sent to Columbia Forest Products during the audit term. In the field there were several examples of veneer grade birch trees left standing and some that were cut and left at the stump or at roadside from which veneer could have been merchandized and sent to Columbia Forest Products. Difficulty in marketing the remaining portion of birch stems, exacerbated by a birch price disagreement with Grant during the audit term, was one of the main reasons given by Tembec for this under-achievement. However, Tembec staff also noted that it was difficult to arrange for the load and haul of sporadic quantities of birch veneer logs. Beyond the technical difficulties noted, the audit team noted a lack of urgency felt by Tembec and Columbia Forest Products personnel that this commitment be met, despite Columbia Forest Products' insistence that they are in need of as much veneer as possible. A recommendation was provided to have Tembec continue efforts to meet the Columbia Forest Products veneer supply commitment.

The audit team noted that merchantable timber was often used as corduroy road fill during the audit term. Tembec staff suggested that stumpage dues were only paid when spruce is used as corduroy. MNR confirmed that stumpage had not been paid on trees used in corduroy during the audit term. Stumpage must be paid for all merchantable timber harvested on Crown land and a recommendation was made to address this matter.

The required minimum balance has not been maintained in the Forest Renewal Trust Account. Low harvest levels on the Forest have resulted in reduced contributions while silviculture programs have been maintained, resulting in account reductions below minimum balance levels. Although dialogue to address this matter has been ongoing between Tembec and MNR, no resolution has been forthcoming. A recommendation was given to resolve the concern.

Tembec made up to 30,000 m³/yr available to Mattagami First Nation for harvesting, resulting in 10-13 jobs for a community that includes approximately 250 people on-reserve. Significant resources were required of Tembec to ensure this occurred. In addition, Tembec made a region-wide commitment to provide harvest opportunities to Taykwa Tagamou Nation. However, these were never implemented on the Romeo Malette Forest due to the great distance between the Forest and the community.

At a time when the forest sector's economy is poor, Tembec's efforts should not be understated. One Aboriginal representative revealed that his community was grateful for the respect that Tembec and MNR had shown. The audit team notes that both Tembec and the MNR have been supportive of Aboriginal initiatives.

An Action Plan to address the findings of the 2002 IFA Report was prepared as was a Status Report to report on progress on the action items. The audit team reviewed the 2002 IFA report and its findings, and assessed the degree to which the recommendations contained therein were met. Progress towards meeting the terms of the recommendations had proceeded well. Noteworthy was the progress on the two critical recommendations (surveys of backlog areas and re-inventory the Romeo Malette Forest) where the audit team noted substantial

effort to complete the backlog surveys and provided a Best Practice for the new FRI for the Romeo Malette Forest. Some work still requires completion.

Conclusion

The audit team concludes that, with the exceptions noted in the audit report, management of the Romeo Malette Forest was in compliance with legislation, regulations and policies and was effective during the term of the audit. The Romeo Malette Forest was also managed in compliance with the terms of Sustainable Forest Licence No. 550398 held by Tembec Industries Inc. Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol.

Recommendation 29: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Tembec Industries Inc. Sustainable Forest Licence for the Romeo Malette Forest.

Table 14. Summary of recommendations, suggestions and best practices.

Principle 1: Commitment
None
Principle 2: Public Participation
Recommendations: 1. MNR must update the Timmins LCC Terms of Reference to comply with the FMPM. 2. MNR must ensure that annual spray notices contain sufficient detail to allow for identification of the location of the planned aerial herbicide project. Suggestions: 1. The Timmins LCC should consider utilizing task teams, as identified in its Terms of Reference, to address non-FMPM issues or to investigate aspects of forest management in greater detail. 2. MNR and Tembec should recognize each other's legal and other commitments and prepare a joint strategy to address the existing Aboriginal consultation efforts of both organizations. 3. MNR should maintain records to indicate the actual date of AWS notice appearance in print media.
Principle 3: Forest Management Planning
Recommendations: 3. MNR must encourage RSA proponents to attend scoping meetings with MNR in order to ensure that the proponents receive sufficient background information. 4. Tembec must address Recommendations 4 and 15 from the 2002 IFA in the development of the 2009-2019 FMP for the Romeo Malette Forest. 5. MNR must ensure that the values map presented at forest management planning public consultation information centres are current and accurate. 6. MNR must ensure that all AOC prescriptions can be traced back to a value recorded in NRVIS used in the forest management planning process. 7. Tembec must ensure that prescriptions developed to protect remote tourism values, or changes to use management strategies for roads or road networks are documented as per the FMPM. 8. MNR and Tembec must comply with the amendment title, certification and approval page format of the 2004 FMPM. 9. Tembec and MNR must ensure that the 2009-2019 FMP contains all required text and that the selected operations fully complement the strategic direction. 10. Tembec and MNR must ensure that AWSs are complete and accurate. 11. Tembec must ensure that AWSs contain only those operations that are expected to occur during that year and a reasonable amount of additional area to allow for operational flexibility. 12. Tembec must update all FOPs in the appropriate AWS when changes occur.

Continued on next page.

Table 14 continued.

Principle 3: Forest Management Planning (continued)
Suggestions: 4. MNR should develop a strategy for the collection of Aboriginal values for the forest management planning process for the 2009-2019 FMP. 5. MNR and Tembec should assess the reasons for the delay in approval of the 2002-2007 FMP amendments #4, 5, and 13. Best Practice: 1. Tembec produced a state-of-the-art inventory that will vastly improve strategic and operational planning on the Romeo Malette Forest.
Principle 4: Plan Implementation
Recommendations: 13. Tembec and MNR must ensure that utilization is properly assessed on all harvested sites. 14. Tembec and MNR must ensure that the residual trees in all harvested blocks do not jeopardize regeneration. 15. Tembec must ensure that, where white spruce is a component of the stand prior to harvest, renewal activities target similar levels in the future forest. 16. Tembec must only prescribe CLAAG on appropriate sites. 17. Tembec must ensure that, on average, the conifer component of upland stands within lowland complexes is retained in the future forest. 18. Tembec must reduce the productive area covered by slash in lowland blocks in the Romeo Malette Forest. 19. Corporate MNR must provide clear direction for slash management to limit losses of productive land. 20. Tembec must ensure that cross drainage culverts are installed wherever necessary. 21. Tembec must ensure that bridge surface construction minimizes the amount of sedimentation that can occur. 22. Tembec must develop and implement an operating procedure to ensure that new road construction does not facilitate vehicular access into AOCs that protect unknown fisheries values. Suggestions: 6. Tembec should ensure a company standard operating procedure advises operators to minimize grubbing within 100 m of water crossings or sensitive waterbodies. 7. MNR should investigate liabilities associated with outdated pits and ensure that safety concerns are mitigated. 8. Tembec should instruct operators to store and redistribute overburden carefully at all aggregate pit sites to facilitate better re-vegetation after rehabilitation. Best Practice: 2. Tembec is commended for minimizing site disturbance during the audit term.
Principle 5: Systems Support
None
Principle 6: Monitoring
Recommendations: 23. Tembec and MNR must ensure that blocks are suspended as required. 24. Tembec must develop and implement a program to systematically monitor and track all silviculture activities to ensure desired stand development according to the SGRs.

Continued on next page.

Table 14 continued.

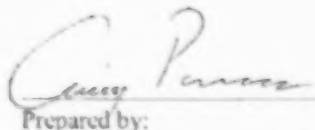
Principle 7: Achievement of Management Objectives and Forest Sustainability
Suggestions: 9. MNR should resist changes to the suite of indicators used to assess forest sustainability and only consider it for compelling scientific or social (in the case of local indicators) reasons. 10. MNR should consider providing differential values for indicators reflecting the fact that some are more important than others in the assessment of sustainability.
Principle 8: Contractual Obligations
Recommendation: 25. Tembec must ensure that wood deliveries, particularly of veneer-grade wood, are expedited. 26. Tembec must make continuous attempts to meet the Columbia Forest Products wood supply commitment. 27. Tembec must pay stumpage dues on all merchantable timber harvested on Crown land including trees used for road corduroy. 28. MNR and Tembec must, by October 31, 2008, develop a fair and effective means of returning the Forest Renewal Trust Account for the Romeo Malette Forest to its required minimum balance.
Suggestions: 11. Corporate MNR should consider adding a mechanism to legal documents that allows for the revocation of salvage approvals when necessary.
Conclusion
Recommendation: 29. Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Tembec Industries Inc. Sustainable Forest Licence for the Romeo Malette Forest.

Appendix A

**Comparison and Trend Analysis of Planned versus Actual Forest
Operations Report**

**Comparison and Trend
Analysis of Planned vs. Actual
Forest Operations
for the Romeo Malette Forest**

Prepared for the 2002-2007 Independent Forest Audit



Prepared by:

Craig Parsons, R.P.F. #1966

Tembec Enterprises Inc

June 22, 2007

Date



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1.0 Introduction

This trend analysis of planned versus actual forest operations is one component of the 2007 independent forest audit of forest management activities on the Romeo Malette Forest. The purpose of the audit is to assess compliance of forest management with the Crown Forest Sustainability Act, its regulated manuals, the forest management planning process, and planned versus actual forest management activities. Continual improvement of these activities is facilitated through the identification of a series of recommendations, suggestions, and best management practices.

The term of the audit is April 1st, 2002 to March 31st, 2007. However, the scope of this trend analysis includes forest management activities from the audited period plus the two proceeding operational terms. Specifically the period from 1992-1997 and the period from 1997-2002 are included in the analysis with the recently completed term 2002-2007. The comparison of these three periods permits the development of a level of understanding of the evolving management practices on the Romeo Malette Forest.

The Romeo Malette Forest was formed in 1983 at the signing of the Forest Management Agreement # 501400. It was made up of townships in the Ministry of Natural Resources administrative districts of Timmins and Chapleau and covered 3,565 square kilometres. In 1987, 16 townships from the Ministry of Natural Resources administrative district of Gogama were added, while 4 townships from Chapleau were removed. The Unit increased in size, and covered 4,555 square kilometres. The last boundary change took place in 1989, when 16 townships from the Smooth Rock Falls Company Management Unit were added to the Forest Management Agreement, thereby increasing the total unit size to 6,031 square kilometres. The Romeo Malette Forest became an SFL with the approval of the CFSA.

The 1992 to 1997 Timber Management Plan and the 1997 to 2002 Forest Management Plan was written by Malette Inc. Malette Inc. was the primary company conducting harvesting operations, with wood fibre going to the Malette sawmill and the waferboard mill in Timmins. Malette Inc. was purchased in 1995 by Tembec Inc, but continued under the name of Malette Inc until 1998, at which time the company name was changed to Tembec Inc, later Tembec Industries Inc, and most recently Tembec Enterprises Inc.

1.1 Romeo Malette Forest

The Romeo Malette Forest (RMF) is located roughly between the towns of Gogama, Foleyet, and the City of Timmins, and lies within the Ministry of Natural Resources Timmins District, Northeast Region. It is comprised of 61 townships, and is 628,957 hectares in size, of which 26,242 hectares are patent land. These patent lands are primarily mining claims. Crown parks make up 2,493 hectares, the Crown un-managed portion, or Ontario's Living Legacy, consists of 20,201 hectares, with federal land consisting of 5,941 hectares. This federal land is the Flying Post Reserve. The Crown Managed portion of the Unit consists of 474,772 hectares of productive forested land, 50,364 hectares of unproductive forested land and 48,945 hectares of non-forested land. The Crown Managed land on the forest is licensed to Tembec Enterprises Inc. The Company directs its activities from the planning office in Timmins, Ontario.

The Romeo Malette Forest provides the local forest industry with much of its fibre resources, in particular Tembec's sawmills in Timmins and Cochrane. Poplar is supplied to Grant Forest Products Inc.'s Oriented Strand Board (OSB) mill in Timmins, which was purchased from Malette Inc. in 1998.

Smaller volumes have also been supplied to Grant Forest Products Inc.'s OSB mill in Englehart. Poplar veneer is provided to Norbord Industries Inc.'s veneer mill in Cochrane. Oversize conifer volume is provided to the Little John sawmill in Timmins.

2.0 Comparison and Trend Analysis

The information contained in this trend analysis is drawn from the Report of Past Forest Operations (RPFO) covering activities during the periods of 1992-1997 and 1997-2002. This analysis is further expanded with a to-date summary of operations conducted under the 2002-2007 Forest Management Plan (FMP), drawn from annual reports covering the period of April 1st, 2002 to March 31st, 2006. Silviculture activities represented in the associated tables include the full 2002-2007 period but harvest area, volume, and natural regeneration numbers represent the first four years of the 2002-2007 period. At the time of writing this report the depletion information for the 2006-2007 annual report year was unavailable.

2.1 Summary of Total Area Under Management

Table 1 provides a summary of the Crown managed landbase by non-forested, forested, and production forest. Information for this table is taken from Table 4.8.2 of the 1992 Timber Management Plan, and the 1997 Forest Management Plan. The 1997 plan was completed before the phase in provisions of the 1996 Forest Management Planning Manual were implemented and was completed using the format from the Timber Management Planning Manual. The 2002-2007 numbers are from Table FMP-1 of the 2002 FMP. The landbase summary for the 1992-1997 period was used as a benchmark.

The 1997 FMP shows a drop in the production forest and the total forested land of 9,329 ha from the 1992 levels. Almost $\frac{1}{2}$ the reduction is in the non-productive forested land. In 1991, aerial photography was flown of the center portion of the unit and a partial re-inventory was completed, but the information was not available for the 1992 plan. The updated inventory was used for the 1997 plan. In the text of the 1997 plan, the reduction in the productive forest and the total forested land was mentioned under the general description of the forest, but there was no explanation for the variance. Conversion of the inventory from 1:15,840 township mylars to 1:20,000 OBM mylars may explain some of the reduction. The inventory also had a significant increase (50,208 hectares) in the amount of B&S/NSR from the 1992 inventory. The inventory update captured disturbance areas that had not been assessed, however, the area was not all true B&S/NSR as shown in Table 4.8.2 from the 1997 FMP. In the 2002 FMP the area was broken out further and 59,601 hectares were included in FMP-1 as depleted awaiting assessment. Again the productive forest and the total forested landbase decreased from the 1997 to 2002 FMP's. This reduction in the landbase was the result of the Ontario Living Legacy (OLL) exercise and resulted in the reduction of the Crown managed forested landbase by nearly 20,000 hectares. This area was included the Strategic Forest Management Model (SFMM) as reserve forest and was unavailable for allocation of Available Harvest Area (AHA).

Also of note is the increase in non-forested land under the other land category. The area nearly doubled from 5,447 hectares in 1997 to 10,126 hectares in 2002. Buffering of line segments in the FRI such as roads, creeks, and powerlines resulted in the increase in unclassified lands.

The 1997-2002 IFA brought forward concerns about the condition of the RMF inventory. The backlog issue noted by the auditors identified the high proportion of NSR, barren and scattered, and depleted lands in the inventory. Nearly one quarter of the productive land in the inventory fell into this category.

The auditors noted there was insufficient survey work, poor record keeping (lost information dating back to time when the forest included a number of Crown Management units that were eventually amalgamated to form the RMF), and only a partial re-inventory being done in 1993 using 1991 photography. The auditors noted approximately 33,000 hectares of depletion information not included in the 1993 re-inventory. The most serious recommendation made by the auditors was:

"The Company must complete surveys on the barren and scattered, not-sufficiently-regenerated, and depleted areas that are considered backlog as of 2004 sufficient to provide updated information on the Free-to-Grow (FTG) status information on all stands, and provide proper stand descriptions for areas classified as FTG. The information must be incorporated into the forest inventory and used in the preparation of the 2007 FMP."

As a result of work completed for the 1997-2002 Independent Forest Audit action plan there was a significant amount of work dedicated to the clean-up of the RMF inventory, as well as a plan to re-inventory the entire unit with the latest technology. The completion of the inventory project met with some delay and to ensure the best information was used moving forward in the development of the next forest management plan, a two-year contingency plan was proposed and approved in order to use the new inventory for the 2009-2019 FMP. With the completion of the new inventory and implementation of Tembec's internal updating procedures, the state of the inventory for planning and operational purposes now meets the highest standards. Changes in the working group composition of the forest are discussed in section 2.5.

2.2 Description of Forest Units

Table 2 summarizes the forest units used in the three periods of this analysis. The sources of this information are Table 4.11 for the 1992-1997 and 1997-2002 periods and Table FMP-8 for the 2002-2007 period.

The forest units changed in each of the three planning periods. In the 1992 – 1997 period the forest units were based on species and site class. Black and white spruce were grouped to form the spruce forest unit and then sub-divided by the site class to split the unit into spruce 1 (site classes X, 1, and 2) and spruce 2 (site class 3) forest units. Pines were also grouped using the same parameters. For the other forest units trembling aspen and balsam poplar were grouped to form the PO (poplar) forest unit, white and yellow birch to form the BW (white birch) forest unit, and larch and cedar grouped to form the OC (other conifer) forest unit. These latter groupings considered working group species only and not site class.

In the 1997 plan, the forest was split into pure (PN - pine, PO - poplar, BI - birch), mixed (MX - mixedwood, MC - mixed conifer), upland (SU - spruce upland) and lowland (SL - spruce lowland, OC - Other conifer) forest units. The plan text reasoned that the forest units were changed to allow for more precision in forecasting volumes in the non-pure forest stands. In the 2002 FMP, the northeast regional standard forest units were adopted. As a result the number of forest units increased from 8 in the 1997 FMP to 16 in 2002 FMP.

2.3 Summary of Average Planned and Actual Harvest Volumes

Table 3 provides a summary of the annualized planned and actual volumes for the 3 plan periods. The actual harvest volumes for the 2002-2007 period are based on the first four completed annual reports for the period. The final Year Ten annual report for the 2002-2007 period will be written in November

2007 and submitted to the MNR Timmins District, and MNR Northeast Region for review and comment.

Actual harvest volume for the 1992-1997 period was more than planned for spruce, pine and fir (SPF) and less than planned in poplar. Utilization of SPF was 116.6% of the planned SPF volume (345,320 m³ of 308,722 m³), and each individual species exceeded planned volumes. This volume was achieved by harvesting 58.1% of the total harvest area allocated (Table 4 – Summary of Planned and Actual Depletion Area). Volume estimates used in the 1992 plan significantly under estimated the actual conifer volumes present across all hectares by 50%. Poplar volumes were at 71.2% of the planned annual harvest level. The under achievement in poplar was caused by the under harvest in the poplar forest unit, as a result of reduced demand at the Timmins OSB facility. The mill was upgraded in late 1995 and restarted in the winter of 1996. The mill did not consume at full production levels during the first few months of start-up and less fibre was required. In the same year a four-month strike occurred at the mill, which further reduced mill consumption. The Company reduced harvest levels on the RMF to match the reduction in mill demand.

Conifer volumes harvested during the 1997 – 2002 period exceeded the planned volume by 121,540 m³ (8%). The majority of the conifer volume was utilized at Tembec's sawmill in Timmins, with volume flowing to Tembec's other facilities in Cochrane, Smooth Rock Falls, and Kirkland Lake. These conifer volumes flowed to Tembec facilities other than Timmins sawmill in an effort to match the log product with the best end user. Small dimension sawlogs were shipped to the Cochrane and Kirkland Lake sawmills. Both of these mills were able to better utilize small diameter sawlogs (i.e. higher lumber recovery factor). Pulp grade conifer logs were shipped to the Smooth Rock Falls pulp mill.

Actual hardwood volumes were well below the planned hardwood volumes. Only 64% of the poplar and 1% of the white birch volumes were harvested respectively. Grant Forest Products Inc utilized the majority of the poplar volume at their Timmins and Englehart oriented strand board facilities. A fire in 1997 eliminated demand at the Timmins OSB facility for approximately 1 year. The Timmins facility had directives for 95,000 m³ of poplar OSB and 65,000 m³ of birch OSB. The total poplar directive for the 5-year term was 475,000 m³. During the term 95% (360,836 m³) of the 4-year directive (380,000 m³) was delivered. Less than 1% of the birch directive was delivered due to lack of demand. Following reconstruction, Malette sold the mill to Grant Forest Products, and a Memorandum of Agreement (MOA) was signed between the companies to deliver 133,700 m³ of poplar OSB annually (92% of the annually available volume in the FMP). Since the mill was in operation for 4 of the 5 years of the FMP this translates to 79.3% (360,836 m³) of the 4-year MOA volume (454,800 m³) being delivered. As part of the MOA, 47,800 m³ of OSB quality birch was to be delivered annually (95% of the available volume). During the term only 211 m³ of birch OSB was delivered representing less than 1% of the anticipated 4- year volume (191,200 m³). The anticipated demand for birch OSB did not materialize during the 1997-2002 period.

For the first four years of the 2002-2007 plan period, the trend of over-achievement in SPF has continued, but not in all species. To date the annual harvest volume level in SPF is 106.6% of the annual level planned in the FMP. In spruce, the annual planned harvest volume has been under-achieved by 8.5% (20,683m³), while jack pine is 75.5% (36,991 m³) above the average annual level, and balsam fir is 32.8% (3,566 m³) above the planned average annual level. A significant proportion of the over-achievement in SPF occurred in the first two years of the plan.

Poplar utilization is below the annual planned average of 95,060 m³ by 40.3% (38,269 m³). Harvesting in the first four years has shown the FRI over predicts the poplar volumes by approximately 25%. The average annual volume in Table 3 is based on additional volumes, particularly poplar, added to the plan through the "poplar amendment". This amendment was not approved until the beginning of the last year of the FMP and the blocks were not available for harvest in the first four years. This is a contributing factor to the underachievement of the average annual volume. Some of the blocks affected by the poplar amendment were harvested in the last year of the FMP but the depletion information was not available at the time of writing this report. Two harvesting areas that contained a large proportion of the available harvest in the PO1 forest unit had not been harvested in the first four years further contributing to the underachievement to date.

Birch utilization was well below planned levels during the first four years of the 2002 – 2007 FMP. A market existed for OSB birch for only one year during the first four years of this plan term. There was a small volume of birch chipped and utilized by the Smooth Rock Falls mill in 2006, but the potential for that market continuing ended with the closure of that facility in 2006. Birch utilization is at 20% (11,161 m³) of the planned annual level of 54,974 m³. A comparison of planned harvest volumes versus actual harvest volumes indicated that the planned volumes were approximately 40 to 50% higher than the actual volumes achieved.

Utilization of cedar and larch was well below the planned average annual level at 13.8%. Most of the volume utilized was cedar. Cedar markets are typically a long way from Timmins and in turn interest in cedar in the area is sporadic. A small amount of larch was used by the Smooth Rock Falls pulp mill.

Over the three plan terms the volume of jack pine has decreased on an annual basis from the 1992 TMP to the 2002 FMP. At the same time the annual volume of spruce and balsam fir utilized has increased to somewhat offset the reduction in jack pine, however, there has been a steady decrease in the total SPF volume utilized over the three successive plan terms (358,970 m³ annually in the 1992 TMP to 320,307 m³ in the 2002 FMP). The decrease in volume harvested is linked to the reduction in available harvest area, which is discussed in section 2.4.

The utilization of poplar has steadily decreased over the three plan terms from 110,254 m³ annually in the 1992-1997 TMP, to 56,979 m³ annually in the 2002-2007 FMP. This decrease has occurred despite an increase in the proportion of the harvest of the annual available area in the poplar forest unit. In the 1992-1997 TMP 64.8% of the annual available area in the PO forest unit harvested, and increased to 67.3% in the 2002-2007 FMP. With the decline in both the SPF and poplar volumes available from more pure species sites, utilization in mixedwoods has significantly increased in importance over the three plan periods.

2.4 Summary of Planned and Actual Harvest Area

Table 4 compares, on an annualized basis, planned and actual area harvested for the periods 1992-1997, 1997-2002, and 2002-2007. Information in the table is obtained from the RPFOS and annual reports (AR's) produced for these time periods. The numbers for the 2002-2007 period are annualized for the four years that have been reported to date.

For the period 1992-1997, 58% (3,337 ha) of the annual available harvest area was cut. Volume projections used to develop the FMP were very conservative, and the Company reduced its annual area harvest to compensate for the increased volume yields and reduction in demand for poplar.

Over the 1997 – 2002 period, 72% (3,585 ha) of the annual available harvest area was cut. Again volume projections were high for conifer and the harvest area was reduced to compensate for the higher than expected per hectare volume yields and reduction in demand for poplar and birch. Salvage operations (Baker Lake Fire, Sewell Fire, Reynolds Township Fire, and a blow down in Carter Township) were carried out over three years of the FMP harvesting a total of 437 ha further reducing the demand to harvest blocks in the FMP.

The same trend has continued through the 2002-2007 period. The trend data for this period is based on the first 4 years of operations. The average annual harvest area is 75.5% (3,178 ha) of the planned annual area. Again, higher than expected per hectare SPF volume yields were attained, particularly in jack pine where yields of 175% of the planned annual average volume were achieved. As previously mentioned there was a poplar amendment to add harvest area that was not approved until the end of year 4 of the plan. This new harvest area is included in Table 4 in the planned area column, however the harvest planning for the first four years was based on the average annual area available based on the originally approved FMP. This additional area added through the poplar amendment increased the AHA in certain forest units resulting in an overall increase in the AHA for the last year of the FMP.

Total actual un-planned bypass area during the first four years of the 2002-2007 period was 2003 ha, which represents 9.5% (1,998 ha) of the total area allocated (21,035 ha). The most common reasons for bypass were marketability and operability. Areas bypassed for marketability reasons were most commonly areas where there were concentrations of larch, cedar, and birch for which there was no market. Inoperable areas included lowland areas in summer blocks where the small size of these wet areas did not warrant bringing in high flotation equipment. Logging these areas in the summer would have resulted in site disturbance and the areas remaining were not large enough to economically harvest in the winter. Bypass was not reported in the 1992-1997 or 1997 – 2002 plans.

At the time of writing this report, the Timmins sawmill had been closed since July 2006 due to poor market conditions. The mill re-opened for an 8 week period in December 2006 and January 2007 to consume the remaining roundwood mill yard inventory. Due to this shutdown harvest levels were reduced in the last year of the plan and will be well below the average annual level to date.

The planned available harvest area has declined in each of the successive plan terms (declined by 1,539 ha from the 1992-1997 to the 2002-2007 plan term), while the actual annual harvest area has remained more stable (decreased by 407 ha annually from the 1992-1997 plan to the 2002-2007 plan). In the 1992-1997 plan there was more harvest in pine dominated sites which has since decreased in the 2002-2007 plan term to approximately 1/3 of the level seen in the 1992 FMP. In that same period the amount of harvesting in mixedwoods has increased. The reduction in planned harvest levels is the result of increased constraints on wood supply through introduction of new guidelines, the loss of production forest through the OLL process and the change in the age class structure of the forest.

2.5 Summary of Managed Productive Forest by Forest Unit

Table 5 provides a summary by forest unit of the Crown managed forest for the 3 terms. The source of the information for the 1992-1997 and 1997-2002 periods is Table 4.8.2 of the respective TMP/FMP. Some information is not available for these periods as it was not part of the requirements at that time. Information for the 2002-2007 period is normally taken from table FMP-9, but for the purposes of this comparison the Crown managed portion of FMP-2 was used. Table 4.8.2 from both the 1992-1997 and

1997-2002 plans listed the area by working group rather than forest unit, and it was felt that the most meaningful comparisons could be made comparing this information with the working group information in FMP-2 of the 2002-2007 FMP.

Over half of the Romeo Malette Forest is found within the spruce working groups, and is predominantly black spruce. From the 1992 plan to the 1997 plan the area in spruce increased by 18,243 hectares while there was a significant decline in the balsam fir working group from 21,681 hectares in 1992 to 4,294 hectares in 1997. A partial re-inventory of the unit accounted for most of this shift, with some of the area in the balsam fir working group being re-interpreted as spruce. The area of the balsam fir working group also declined as a result of the spruce budworm outbreaks which occurred in the 1980's. This area was re-interpreted as other working groups such as birch or poplar. The decline in the balsam fir working group has occurred in young and old age classes. The spruce working group area declined from 1997 period to 2002 period by 21,370 hectares, of which 9,073 hectares moved into Crown un-managed area through the Ontario Living Legacy (OLL) process. Buffering of roads and streams in the planning inventory also contributed to the decline in area. Some of the area identified as spruce working group at time of harvest was planted with jack pine during the 1992 and 1997 periods. The RPFO's for both periods show that the planting targets for pine were exceeded even though the pine areas planned for harvest in both FMP's were not completely harvested. These plantations would have been updated in the 2002 planning inventory as pine working group.

The poplar working group has shown a decrease of 7,342 hectares over the three plan periods. As part of the OLL process 1,951 hectares was moved into the Crown un-managed portion of the landbase. Buffering of roads and creeks in the 2002 planning inventory contributed to the reduction in the area.

The white birch working group has shown a steady increase over the three plan terms, increasing by 5,152 hectares, despite the reduction of area through both the OLL process and the stream and road buffering exercise completed for the 2002 plan. The increase can be seen in both young and old age classes. In many of the old depletions (1950's to 1970's) the larger conifer, particularly white spruce, were removed leaving other species, such as white birch behind. Through various inventory updates these areas are now part of the white birch working group. Lack of markets for white birch over the plan term has limited the harvest in white birch dominated areas.

The OC working group has increased by 3,124 ha over the three plan terms. The working group identification has changed significantly from 1992 when the area was classed as OC. In the 1997 FMP, the area was split into Ce and La, with the majority of the area in the Ce working group.

In the white and red pine working groups there has been a decrease in the amount of area. The last identified harvest depletion of white or red pine working groups was in 1972. Both working groups are quite small and any shift in working group area can be proportionally large. Both species have been planted in the 2002-2007 FMP as part of the white and red pine strategy. White and red pine seedlings have been planted in a mix with other species, but not in large enough proportions to comprise the working group of a FTG stand.

As expected on a forest where harvesting has occurred the age class structure on the forest has changed over the three plan terms. In the main working groups (Pj, Sp, and Po) the area in age classes less than 40 years of age has increased and the older age classes (60+) have subsequently decreased. This is consistent with age class changes over time predicted in SFMM.

Proportionally the most significant increase in younger age classes was in the Pj working group. From the 1992 – 1997 TMP to the 1997-2002 FMP the area in age classes under 40 years of age in this working group decreased from 24,715 ha to 20,921 ha. In the 2002-2007 FMP the area in age classes increased to 28,528 ha. The significant increase in young pine was a result of updated harvest depletions, planting of Pj in suitable sites that were previously in another working group (i.e. Spruce upland sites), and the Sewell burn in 1997 which burned a considerable area of pine.

2.6 Summary of Report of Renewal, Tending and Protection Operations

Table 6 provides a comparison of renewal, tending, and protection operations for the three plan periods. The sources of information for planned areas are TMP Table 4.19 and FMP Table 25. The sources of information for actual areas are TMP Table 4.4, FMP RPFO-7, and applicable annual reports. With the exception of natural regeneration, silviculture activities for the 2006-2007 year have been reported based on actual activities completed, but the area has yet to be reported in an annual report. They have been included to provide an accurate comparison of actual renewal, tending and protection operations to the planned level.

2.6.1 Natural Regeneration

Natural regeneration for the 1992-1997 period falls short of the forecast area in the TMP. As reported in the 1992-1997 RPFO the natural regeneration level is 59.8% of the planned level. Omitted from RPFO-7 for the period was the planned area for careful logging under natural regeneration. In the draft version of the 1992-1997 RPFO included in the 1997 plan there was 5,558 hectares of careful logging reported in the spruce working group but this area was not reported as careful logging in the final version of the RPFO included with the 2002-2007 FMP. In the text of the draft it indicates that the area included in the tables is based on the first three years of actual operations with a forecast of the final two. The area reported as clearcut for the spruce working group in the final version of the RPFO for the 1992-1997 period does contain area that was carefully logged but it is impossible at this point to assign the depletion area into either clearcut or careful logging harvest method. The text of the RPFO does mention the use of careful logging in lowland spruce sites. One of the contributing factors to the under-achievement in the planned natural regeneration during the plan period was the reduced amount of harvest. There was a significant reduction in harvest in all forest units, but was most significant in Spruce 1, Poplar, and White Birch where natural regeneration was the preferred treatment.

The 1997-2002 RPFO reported 62% of the area planned for natural regeneration. In Table 4.19 of the FMP, natural regeneration was split into careful logging and clearcut. Clearcut was to be the preferred harvest method in pine, hardwood dominated stands, and other conifer forest units. Careful logging was to be the preferred harvest method in the conifer dominated forest units (SU, SL, MX, and MC). As noted in Table RPFO-7 of the 1997-2002 RPFO, careful logging was not reported in the first three annual reports. The area shown as careful logging in Table RPFO-7 was reported in the last two annual reports. It is unclear from the annual reports how much area from the first three years of the FMP were actually carefully logged, however it can be concluded that the area reported as clearcut in RPFO-7 is overstated.

In the 2002-2007 period, the area reported to date as natural regeneration is 34.7% of the planned area for the FMP. To date the average annual harvest is 61% of the planned annual level and is contributing to the lower than planned level of natural regeneration. The area to be left for natural regeneration will be finalized in the fall of 2007 once the depletions for the 2006-2007 annual report are complete, and

any outstanding natural regeneration areas from the 2002-2007 FMP will be reported. Overachievement of planting levels has caused some of the decline in anticipated natural regeneration levels.

When the level of natural regeneration is compared to the area harvested for the plan periods there is a steady decline in the area reported as natural regeneration expressed as a percentage of the harvest area. For example in the 1992-1997 period 70.5% (11,767 ha) were reported as natural regeneration on a total harvest of 16,685 hectares. In the 1997-2002 period this ratio declined to 52%, and to date in the 2002-2007 period has declined again to 44%. It is expected that the ratio will increase slightly for the 2002-2007 period once the depletion mapping and silvicultural reporting for the 2006-2007 operating year have been completed. For much of the last year of the 2002-2007 FMP, the Timmins sawmill was closed reducing the demand for conifer sawlogs, and the majority of the blocks harvested were poplar or birch leading and natural regeneration is anticipated.

2.6.2 Artificial Regeneration

For the 1992-1997 term, 82.6% of the planned artificial regeneration levels were achieved, with 98% of the area planned for planting and 18.6% of the area planned for seeding being treated. Considering that harvest levels for this period were 58% of that planned, this level of artificial regeneration was an over achievement of the planned targets. Artificial regeneration levels should have been closer to 60% based on the level of harvest. However, treatment was applied to sites that would benefit most from the investment, such as sites of higher productivity and those with good access.

During the 1997-2002 period 117% of the planned area for planting was completed with 71.9% of the planned harvest area being harvested. Seeding was not forecasted in the 1997-2002 FMP, and would only be considered where careful logging was not effective. Some of the area planted that was in excess of the planned area was treatment of salvage cuts, as well as treatment of not-sufficiently regenerated (NSR) stands identified as part of the FTG survey program. Planned levels of planting in the poplar (PO), birch (BI), and other conifer (OC) forest units areas were lower than actual planted areas. The intent of the FMP was to allow the majority of the area in these forest units areas to regenerate naturally. In order to make silviculture operations more cost effective small areas of the PO, BI, and OC forest unit within conifer dominated harvest blocks were planted. A logical boundary such as a road or creek was used as a boundary for the plantation. Inaccuracies in the forest resource inventory (FRI) resulted in some of the areas planned for natural regeneration actually being planted. Stands typed as poplar in the FRI, when harvested, actually contained a significant conifer component and were planted. The reverse was also true where there was more hardwood on a site than originally stated in the FRI and the area was left for natural regeneration.

During the 2002-2007 FMP, the trend of overachievement of the actual artificial renewal levels versus planned continued. During the term 106.6% of the area planned for planting was achieved. The 2002 FMP assumed that there would be no planting in the BW1, LC1, PO1, or SB1 forest units, but planting occurred in each. Planting of PO1 and BW1 areas occurred most often when small stands of hardwoods were in larger conifer blocks. To make the areas operational for planting the entire block was planted, or a logical boundary such a road or creek was used as a boundary for the plantation. There was also planting of poplar sites in support of the OMNR - Ontario Forest Research Institutes (OFRI) NEBIE mixedwood trial and the Canadian Forest Service's (CFS) mixedwood research trial (215 ha).

There were no forecast seeding treatments in the FMP however one jack pine seeding project of 50 hectares was completed during the term.

2.6.3 Site Preparation

During the 1992-1997 plan period, both mechanical and chemical site preparation were used, with 82.4% (7,580 ha) of the planned area (9,200 ha) being completed. Mechanical site preparation was at 80% (6,474 ha) of the planned level (8,000 ha) while chemical site preparation was 184% (1,106 ha) of the planned level (600 ha). The planned prescribed burn project (600 ha) was not completed because suitable sites could not be found to complete the project. Generally the smaller harvest blocks could not be burned economically. Even with the reduction in the level of mechanical site preparation the program met the intent of the plan because of the reduction in the planned harvest level.

Site preparation in the 1997 FMP was divided into three types. In addition to mechanical and chemical site preparation, hand scalp was included in the forecasts in Table 4.19. The actual hand scalp site preparation conducted in the five-year term was 85% (871 ha) of the planned level (1,030 ha). Hand scalp site preparation accounted for 15% of the total planned site preparation for the FMP. The only forest unit with a significant under-achievement of the planned level was the mixed (MX) forest unit, much of which was not harvested (40% un-harvested). The annual reports identified difficulties in predicting the amount required for the five-year term because this particular forest unit occurs in highly variable site conditions and species compositions.

During the 1997-2002 period, mechanical site preparation levels were at 91.8% (4,477) of the planned level (4,876). The most significant under-achievement of mechanical site preparation was in the spruce upland (SU) forest unit where only 65% of the area forecasted was treated. Annual reports noted sites that were anticipated to require mechanical site preparation that were rocky and not suitable for a mechanical site preparation treatment. The mechanical site preparation program met the intent of the plan because of the reduction in the planned harvest level.

During the 1997-2002 period, chemical site preparation levels were at 59% of the planned level. The majority of the shortfall in chemical site preparation was in the MX forest unit. Under-harvest in this forest unit contributed to the reduced need for treatment. The bulk of the area site prepared in this forest unit was mechanically site prepared. Chemical site preparation was conducted in the first three years of the FMP. Over half of the area treated with chemical site preparation was in the first year of the FMP and was the result of the FTG survey program from the year previous. The necessity for the treatment declined later in the FMP with more sites being mechanically treated.

For the 2002-2007 period, the total area site prepared was 67.4% (5,077 ha) of the planned area (7,535 ha). This plan period saw a reduction in the use of mechanical site preparation. The mechanical site preparation program focussed on sites having thick duff layers and or heavy residual slash that would have impeded tree plant operations. More recently emphasis has been placed on hand scalp and direct planting where the site allows. Some of the sites encountered had high proportions of rock outcroppings or surface stoniness and were unsuitable for mechanical site preparation methods. Improvements in GPS technology have allowed for improved area tracking and planning of site preparation levels.

During the 2002-2007 period, there was an effort to use tools other than mechanical site preparation such as chemical site preparation (187 ha treated with none planned), and slash piling and burning (4,188 ha with none planned).

During the course of the 2002-2007 period the method of reporting areas for slash piling and burning changed. In the first two annual reports the area reported for slash pile burning was reported as gross hectares where, the area of the entire harvest block was reported when slash pile burning occurred. The area reported as slash piled was reported as a percentage of the gross area (14%). In the third year of reporting the methodology changed and the actual segments of road where piling occurred were selected and then buffered 30m to represent the area occupied by slash piles. It was estimated that 85% of the area piled was recovered during the piling program, and therefore 85% of the area created through the buffering exercise was reported for piling. For slash burning, the remaining 15% was reported in areas where burning occurred. The change in reporting methodology reduced the area reported annually without a significant decrease in the actual program.

2.6.4 Tending

Forecast maintenance levels fluctuated over the three planning periods. In the 1992-1997 period tending was 108.2% (10,822 ha) of the 10,000 ha forecasted. On the other hand the pre-commercial thinning program only achieved 28.4% (284 ha) of the forecasted 1,000 ha program. The 1992-1997 RPFO cited that the program was in its infancy and the Company was in the process of assessing both mechanical and chemical systems, and the program had not reached the operational level as quickly as anticipated.

The forecast level of aerial tending for the 1997-2002 plan had increased dramatically from the previous period from 10,000 ha to 14,848 ha. Achievement of the tending program was 62.4% (9,266 ha) of the forecast (14,848 ha). There were major shortfalls in the mixed (MX), spruce upland (SU), and pine (PN) forest units while the area planned for treatment in the spruce lowland (SL) forest unit exceeded anticipated levels by 124%. The annual reports indicated that the shortfalls in the program were the result of plantations being concentrated on less competitive "pure species" sites, reducing the need for tending. The increase in the need for spray in the spruce lowland (SL) forest unit was to deal with alder competition.

Manual cleaning was at 87.3% (131 ha) of the forecast level of 150 ha, and ground tending was at 188.6% (283 ha) of the 150 ha forecasted. The increase in the level of ground chemical application was to alleviate public concerns with aerial spraying near high use roads (i.e. Pine Street, Price Main Road, and Highway 101).

Thinning and improvement operations achieved 62% of the planned level. A strategy for pine was to be written for the FMP with regards to pre-commercial and commercial thinning. This strategy was not completed during the 1997 - 2002 period and was later included in the 2002 FMP. Stands requiring pre-commercial thinning were in short supply, as stand densities found on the RMF did not warrant this type of treatment. A ground survey program was undertaken to identify areas suitable for pre-commercial thinning. A total of 1,347 ha were surveyed to determine the stem density per hectare and assess the suitability of the site for pre-commercial thinning. Of the areas surveyed, 98% were found to have densities of less than 4,000 stems per hectare making them unsuitable for pre-commercial thinning.

The 2002-2007 plan forecast saw a significant decrease in the area forecasted for aerial tending. The forecasted level decreased from 14,848 ha in the 1997 plan to 4,843 ha in the 2002 plan. The forecast level in tending was tied to the area forecasted for planting, and did not fully consider the program that would be required over the five-year period. There was no tending forecasted in LC1 or SB1 sites, which had some level of planting that was not anticipated. The program also did not forecast the need for treatment of lowland sites where alder competition would be present, and did not fully account for

treatments that would be required for areas surveyed NSR. Aerial tending levels for the period were 181% (8,776 ha) of the 4,843 ha forecasted. Ground tending was at 28.4% (106 ha) of the forecasted 373 ha, and was used in areas where there were cottages and homes in the vicinity of the treatment area.

2.7 Summary of Harvest Area Successfully Regenerated

Table 7 was produced using values obtained from digital harvest depletion records for the 1992-1997 period. As can be seen from the table, the total area surveyed and un-surveyed is more than the area reported as depleted in Table 4 by 1,269 hectares. The area depleted in Table 4 is based on the area reported in the 1992-1997 RPFO. Late in the development of the 2002 FMP, errors in the reported depletions in the FRI were discovered dating back to 1987. The depletions were updated and a second draft plan was submitted to reflect the updated inventory and subsequent change to the Strategic Forest Management Model (SFMM). The 1992-1997 RPFO was not updated with the new depletion information.

Of the area depleted by harvest in the 1992-1997 period (17,954), 16,081 hectares have been surveyed. Eighty-six percent of the area surveyed was declared Free To Grow (FTG) with 14% Not Sufficiently Regenerated (NSR). There was a regular ground and aerial assessment program in each year of the period. Efforts later in the plan period relied more on aerial surveys, with auditing conducted by the MNR. The MNR chose sites that were surveyed by the Company aerially and conducted a ground survey to verify the aerial results. Annual meetings were held to compare results and make adjustments where necessary. Results from the aerial surveys were comparable in most cases to those from the ground surveys, and accepted by the MNR.

Of the 2,281 ha found to be NSR 1,013 ha or 44.4% were assessed to require tending followed by a reassessment in the year following the tending, but were otherwise well stocked. Of this area 848.2 ha or 83.7% has received the follow-up tending treatment, most of which occurred in 2006. An additional 111 ha (4.9%) required height growth. The remaining 1,157 ha will require additional silviculture work to reach FTG.

Concerns brought forward during the 2002 Independent Forest Audit about the condition of the planning inventory led to an extensive landbase update process in 2003. A total of 60,141 ha were surveyed as part of the expanded survey program, with an additional 21,134 ha updated from previous surveys that had never been incorporated in the inventory. Of the 81,275 ha updated, 79,445 ha were FTG.

A total of 1,873 hectares of the area depleted during the 1992-1997 five-year planning term were not surveyed. The reasons for this include:

- Stands had not reached the eleventh year following depletion (ie. depletions from 1996-1997).
- Small stands that will be flown when larger adjacent areas are flown. This maintains operational efficiencies.
- Small slivers that are remnants of inventory updates.
- Lag from time of harvest to time of treatment (i.e. a block harvested in 1995, planted in 1998, and scheduled for survey in 2007).

During the 1992-1997 period Forest Operations Prescriptions (FOP)'s were less prescriptive as compared to current practices. The general approach to renewal of the forest was to examine the area post harvest and prescribe a set of treatments that would establish a new forest. Often, the treatment involved increasing the component of conifer through artificial means on all but the mixed-wood and hardwood sites, which were expected to regenerate to aspen dominated stands (expected but regenerated naturally to conifer in some cases). It is therefore difficult to draw any conclusion regarding trends of forest unit conversions during this period other than to say that mixed forest conditions were generally moved, through active or passive treatments, to either more pure conifer, pure hardwood or maintained in a mixed conifer-hardwood condition. Difficulty with respect to post harvest alder competition on fresh black spruce sites on the north end of the forest has been an issue that has been dealt with through the use of herbicides. Recent attention to reducing site disturbance during the frost-free and early winter season is anticipated to reduce the need for tending treatments on naturally regenerating sites. In conjunction with improvements to careful logging operations, reduced site disturbance will reduce the lag time required for less productive sites to reach FTG status.

A review of the silviculture related objectives, strategies and targets in the 2002-2007 FMP tied to the effectiveness of the renewal program is provided below.

Objective II (2): Keep forest ecosystems productive.

This objective had two targets, the first of which was to reduce the area in disturbed forest (NSR) to a maximum of fifteen years worth of disturbance. Over the last three planning terms the total disturbance area reported, including harvest and natural depletions, was 58,260 ha. Using the most recent inventory (2007 inventory developed for the 2007-2009 RMF Contingency FMP), the total disturbed area in Crown managed forest including harvest, natural depletion, true barren and scattered, and all NSR categories totals 44,999 ha. This also includes forecast depletions, which will be confirmed with the completion of the depletion supplementary aerial photography program in the summer of 2007. The inventory update in 2003 was the driving factor in meeting this objective.

Objective IV (1): Ensure the available forest is protected from sustained deforestation or conversion to other uses and to ensure that a balance is maintained between utilization and rejuvenation.

This objective had a number of targets, most of which are not tied to the effectiveness of silviculture, however one of the targets was to maximize the area of total productive forest, through which the strategy was to regenerate all eligible areas harvested. The silvicultural objective was met by employing effective renewal and tending treatments during this term.

Objective VI (4): Ensure best available science and appropriate inventories are used.

This objective had a target to conduct FTG assessments on 4,000 ha per year. A total of 21,880 ha of FTG assessment were conducted during the 2002-2007 period. Of the 21,880 ha surveyed during the 2002-2007 period, 86.9% (19,019 ha) were declared FTG, with conifer forest units maintained, though there is some shift between conifer forest units (i.e SB1 to SP1). Through implementation of careful logging surveys areas requiring treatment have been identified and subsequently treated artificially to keep ecosystems productive. Slash management strategies have been implemented to return area occupied by slash to productive forest. These efforts have been focused where artificial regeneration is anticipated. New technology has been used, particularly in aerial tending (AGNAV) to better target areas requiring treatment in an effort to use herbicides more judiciously.

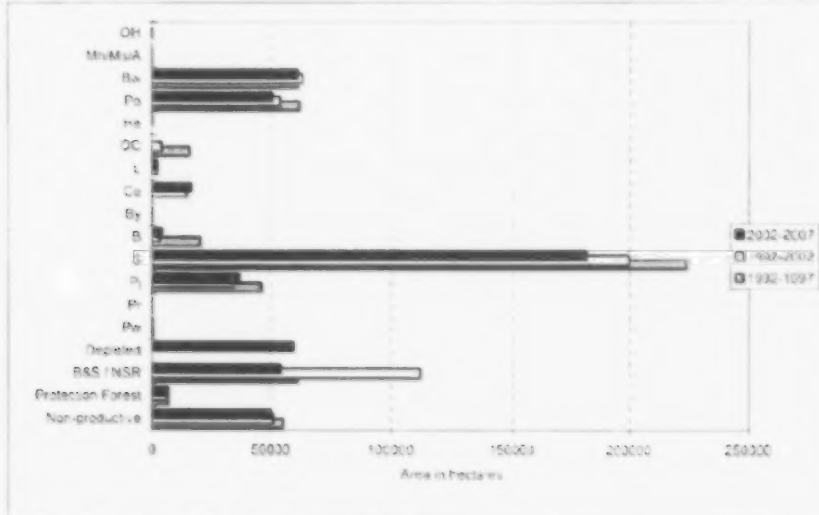
3.0 Conclusion

This trend analysis discusses progress toward the achievement of management objectives during the period 1992 to 2007. An integral part of adaptive management is the linkage between successive planning periods. This trend analysis of planned and actual activities illustrates important instances where objectives were achieved and highlights areas where continued improvement or attention is needed.

Tembec has and will continue moving forward in order to meet or exceed it's forest management obligations, commitments, and innovation in a positive manner. New and ongoing initiatives include maintaining its support of relevant forest research through the Forest Research Partnership (FRP), maintaining it's Forest Stewardship Council (FSC) and ISO 14001 certification and continued support and adherence to the OFIA Code of Forest Practices, and Tembec's Forever Green[®] Environmental Management Program Guiding Principles. Tembec's continued commitment to working with community groups is seen through involvement with the Local Citizens Committee (LCC), local First Nations, and the MNR.

Table 1 - Summary of Total Area Under Management**Past and Current Plans - Crown Managed****Romeo Malette Forest**

Land Type	Plan Term	Area in hectares		
		Past Plans		Current
		1992-1997	1997-2002	2002-2007
Non-Forested		44,492	42,717	38,365
Other Land		4,256	5,447	10,126
Forested		48,748	48,164	48,491
Non-productive		55,333	50,975	50,364
Productive		-	-	-
Protection		6,577	6,381	6,678
Production Forest				
B&S / NSR		61,418	111,626	54,188
Depleted				59,601
Forest Stands by Working Group				
Pe		500	362	366
Pr		136	73	66
Pj		46,113	34,046	37,054
S		223,903	199,656	181,499
B		20,349	3,281	4,027
By		185	151	67
Ce		110	14,673	15,522
L			2,104	2,167
OC		15,953	3,897	
He				292
Po		62,016	53,980	50,805
Be		61,616	63,378	61,337
Mn/Ms/A		156	146	81
OH		13	320	
Total Production Forest		492,468	487,693	468,092
Total Forested Land		554,378	545,049	525,134



Source: FMPM Table FMP-1, FMP-2
 TPM Table 4.8.2

Table 2 - DESCRIPTION OF FOREST UNITS (FMP-8)
Romeo Malette Forest

1992-1997

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information		
Code	Name						SPC	STKG	SC
PJ1	Pine 1	Conifer	Jack Pine		Clear Cut				
PJ2	Pine 2	Conifer	Jack Pine		Clear Cut				
SB1	Spruce 1	Conifer	Black Spruce		Clear Cut				
SB2	Spruce 2	Conifer	Black Spruce		Clear Cut				
BF	Balsam	Conifer	Balsam Fir		Clear Cut				
PO	Poplar	Hardwood	Poplar		Clear Cut				
BW	White Birch	Hardwood	White Birch		Clear Cut				
OC	Other Conifer	Conifer	Black Spruce		Clear Cut				

Source: TPM Table 4.11

1997-2002

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information		
Code	Name						SPC	STKG	SC
PN	Pine	Conifer	Jack Pine		Clear Cut				
MX	Mixedwood	Mixedwood	Jack Pine		Clear Cut				
SL	Spruce Upland	Conifer	Black Spruce		Clear Cut				
SL	Spruce Lowland	Conifer	Black Spruce		Clear Cut				
MC	Mixed Conifer	Conifer	Spruce		Clear Cut				
PO	Poplar	Hardwood	Poplar		Clear Cut				
BI	Birch	Hardwood	White Birch		Clear Cut				
OC	Other Conifer	Conifer	Black Spruce		Clear Cut				

Source: TPM Table 4.11

2002-2007

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information		
Code	Name						SPC	STKG	SC
PR1	Red Pine	Conifer	Red Pine	3b		$pr=0.7$	Pj 9Po1	0.4	X
PW1	White Pine	Conifer	White Pine	6b, c, 3b		$pw-pr+sw-he=0.4$ and $pw=0.3$	Pw 5Bw 2Po1BF 1Sb 1	0.53	1.9
PRW	White & Red Pine	Conifer	Red Pine	3b		$pw-pr=0.4$	Pj 4Po 2Pj 1Sb 1Bw 1BF 1	0.66	1.6
LH1	Lowland Hardwood	Hardwood	Lowland Hardwood	15		$lh=0.3$	Lh 4Bw 2BF 2Po 1Ce 1	0.76	1.7
TH1	Tolerant Hardwood	Tol. Hardwood	Upland Hardwood	16, 15		$lh+mh+uh=0.3$	U 3 5Bw 3Sw 1Po 1	0.7	2.4
BOG	Spruce Bog	Conifer	Black Spruce	14		$sb+la=0.7$ and $pw=0$ and $sc=0.4$ $sb=0.8$ and $mh+uh+pr=0$ and	Sb 9La 1	0.5	0
SB1	Black Spruce Lowland	Conifer	Black Spruce	11, 8	Clear Cut	$pw+pr=0.1$	SB0	0.6	1.4
PJ1	Jack Pine	Conifer	Jack Pine	2a, b, 4, 3	Clear Cut	$pr=0.7$ and $po+bw+uh+mh+lh=0.2$	Pj 3Sb 1Po 1	0.89	1.7
LC1	Lowland Conifer	Conifer	Black Spruce	13, 12	Clear Cut	$sb+ce+la=0.8$ and $mh+uh+pr=0$ and $pw+pr=0.1$	Sb 5Ce 3La 1Bw 1	0.61	1.9
PJ2	Pine Spruce	Conifer	Jack Pine	3, 4	Clear Cut	$pr+sb+pr=0.7$ or $pr=0.5$ and $pr+sb+bf+sw+he+pw+pr+ce+la=0.7$ and $bf+sw+he+pw+ce+la=0.2$ and $pr=sh$	Pj 6Sb 2Po 1Bw 1	0.79	1.7
SP1	Spruce Pine	Conifer	Black Spruce	6b, 9, 5a, b	Clear Cut	$sb+sw+bf+ce+la+pw+pr+pr+he=0.7a$ and $(bf+ce+pw+la+sw+he)=0.2$ or $pr=0.3$	Sb 6Bw 2Po 1Pj 1	0.66	1.1
SE1	Spruce Fir	Conifer	Black Spruce	9, 6	Clear Cut	$sb+sw+bf+ce+la+pw+pr+pr+he=0.7$	Sb 3Sw 2BF 2Bw 2Ce 1	0.61	1.2
PO1	Poplar	Hardwood	Poplar	10, 6, 7a, b	Clear Cut	$po+bw+mh+uh+lh=0.7$ and $po=0.5$	Po 7Bw 1Sb 1Pj 1	0.79	1.9
BW1	Birch Poplar	Hardwood	White Birch	6, 10	Clear Cut	$po+bw+mh+uh+lh=0.7$	Bw 6Po 2Sb 1Sw 1	0.84	2.1
MW1	Jack Pine Mixed	Mixedwood	Jack Pine	3a	Clear Cut	$pr=0.2$	Pj 4Po 3Bw 2Sb 1	0.82	1.9
MW2	Spruce Mixed	Mixedwood	White Birch	6a, b, c	Clear Cut	all remaining stands	Bw 3Sb 2Po 2BF 1Sw 1Ce 1	0.7	1.8

Source: TPM Table 4.11
FMP Table FMP-8

Table 3 - Summary of Planned & Actual Harvest Volumes
Romeo Malette Forest

Average Planned Annual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

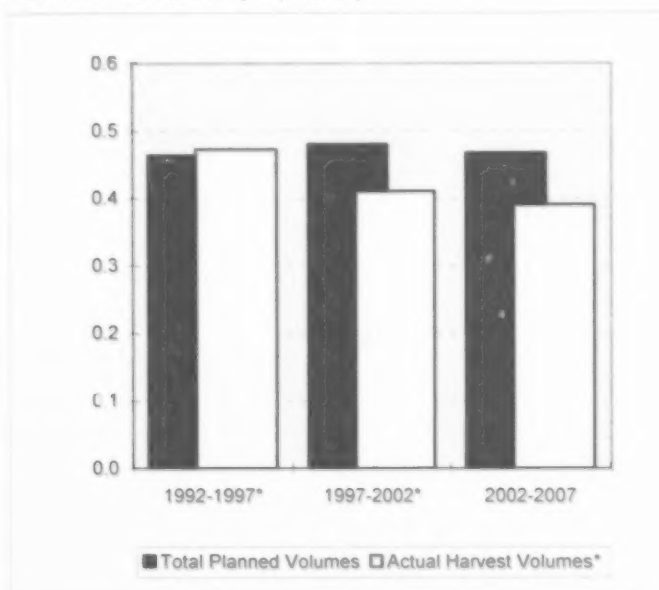
Species	Volume in '000's cubic metres		
	Past Plans		Current
	1992-1997	1997-2002	2002-2007
Jack Pine	105 653	66 563	48 957
Spruce (black & white)	186 895	232 885	240 594
Balsam Fir	16 174	6 527	10 882
Cedar	-	-	14 833
Larch	-	-	1 821
Poplar	154 760	123 908	95 060
White Birch	-	50 024	54 974
Total Planned Volumes	463 482	479 907	467 122

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

Species	Volume in '000's cubic metres		
	Past Plans		Current
	1992-1997	1997-2002	2002-2007
White Pine	0 864	0 055	-
Jack Pine	136 873	74 903	85 948
Spruce (black & white)	206 932	246 118	219 911
Balsam Fir	15 165	8 672	14 448
Cedar	-	-	1 737
Larch	-	0 536	0 556
Poplar	110 254	79 713	56 791
White Birch	2 091	0 369	11 161
Total Actual Volumes	472 179	410 366	390 552

2002-2007 volumes for first 4 year period only



Source: planned TPM Table 4.16.1, 1996 FMPM Table FMP-21, 2004 FMPM FMP-17
 actual TPM Table 4.3.1, 1996 FMPM RPFO-4 and annual reports, 2004 FMPM AR-4

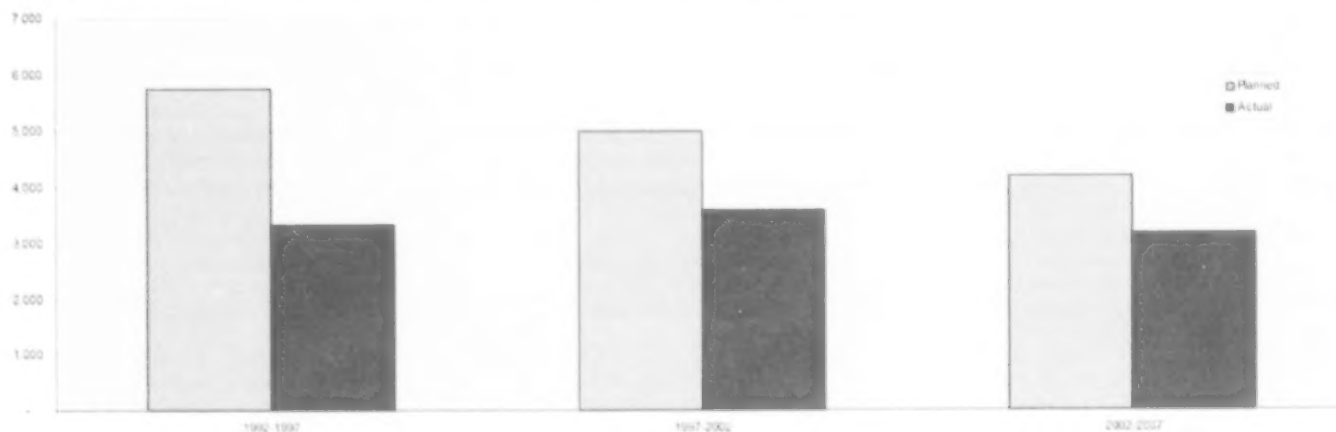
Table 4 - Summary of Planned and Actual Depletion Area

Romeo Malette Forest

Area is annualized for the indicated five year period.

Planned Depletion Area						Actual Depletion Area								
Area in hectares						Area in hectares								
Past Plans						Past Plans								
Plan Term	1992-1997	1997-2002 FUs	1997-2002	2002-2007 FUs	2002-2007	1992-1997			1997-2002			2002-2007		
						FU	Harvest	Natural	FU	Harvest	Natural	FU	Harvest	Natural
Pine 1	975	PI1	367	PJ1	167	Pine 1	795	21	PI1	301	25	PJ1	157	21
Pine 2	102	MI	2 112	PJ2	137	Pine 2	97	2	MI	1 334	263	PJ2	107	25
Spruce 1	2 070	SU	1 494	MIY1	164	Spruce 1	1 006	68	SU	557	221	MIY1	148	25
Spruce 2	103	SL	390	SB1	1 252	Spruce 2	18	13	SL	575	300	SB1	1 154	59
Poplar	1 128	PO	400	SP1	582	Poplar	731	34	PO	305	45	SP1	517	34
Balsam Fir	402	MC	75	PO1	388	Balsam Fir	183	7	MC	48	10	PO1	261	40
White Birch	929	BI	60	SF1	240	White Birch	434	18	BI	18	3	SF1	146	23
Other Conifer	32	OC	84	BIY1	225	Other Conifer	34	5	OC	44	17	BIY1	73	32
				LC1	405							LC1	191	51
				MIY2	639							MIY2	423	152
Total Area	5 745		4 581		4 207		3 337	167		3 585	592		3 178	493

2002-2007 actual area includes first 4 years of the FMP term. Annual report information for 2006-2007 not available at time of preparing this report.



planned: TSPM Table 4-10, 1996 FMPM Table FMP-10 and 2004 TSPM FMP-10
 actual: TSPM Table 4-1, 1996 FMPM Table FMP-2 and annual reports: 2004 FMPM AR-1 and AR-6

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest****1992-1997**

1992-1997									
Forest Unit	Age Class	Protection Forest		Production Forest					
		(ha)	(m ³)	Unavailable		Stage of Management	Available		
				(ha)	(m ³)		(ha)	(m ³)	
Pw	B&S							37	
	1-20								
	21-40								
	41-60								
	61-80							20	
	81-100							12	
	101-120							49	
	121+							419	
Forest Unit Subtotal		0	0	0	0			537	

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**1992-1997**

		Protection Forest		Production Forest				
Forest Unit	Age Class	(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pr	B&S							
	1-20						37	
	21-40							
	41-60						37	
	61-80							
	81-100						46	
	101-120						16	
	121+							
Forest Unit Subtotal:		0	0	0	0		136	

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**1992-1997**

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pj	B&S						9,930	
	1-20						11,894	
	21-40						2,891	
	41-60						5,292	
	61-80						16,170	
	81-100						8,930	
	101-120						715	
	121+						221	
Forest Unit Subtotal		0	0	0	0		56,043	

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Sp	B&S						31,755	
	1-20						54,334	
	21-40						2,453	
	41-60						18,452	
	61-80						30,061	
	81-100						35,705	
	101-120						37,197	
	121+						45,701	
Forest Unit Subtotal		0	0	0	0		255,658	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bf	B&S						1,332	
	1-20						296	
	21-40							
	41-60						10,119	
	61-80						6,767	
	81-100						2,723	
	101-120						406	
	121+						38	
Forest Unit Subtotal		0	0	0	0		21,681	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Mh	B&S							
	1-20							
	21-40							
	41-60							
	61-80						63	
	81-100						93	
	101-120							
	121+							
Forest Unit Subtotal		0	0	0	0		156	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Po	B&S						10,081	
	1-20						8,976	
	21-40						4,323	
	41-60						9,758	
	61-80						15,864	
	81-100						16,155	
	101-120						6,162	
	121+						778	
Forest Unit Subtotal		0	0	0	0		72,097	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bo	B&S						6,897	
	1-20						2,291	
	21-40						253	
	41-60						24,149	
	61-80						16,207	
	81-100						13,648	
	101-120						4,038	
	121+						1,030	
Forest Unit Subtotal		0	0	0	0		68,513	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
By	B&S							
	1-20							
	21-40							
	41-60						19	
	61-80						48	
	81-100						45	
	101-120						73	
	121+							
Forest Unit Subtotal		0	0	0	0		185	0

Source:

TNPMP Table 4.8.2, 4.9

1996 FMPMP Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Cc	B&S							
	1-20							
	21-40							
	41-60						10	
	61-80							
	81-100						41	
	101-120							
	121+						59	
Forest Unit Subtotal		0	0	0	0		110	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
OH	B&S							
	1-20							
	21-40							
	41-60						13	
	61-80							
	81-100							
	101-120							
	121+							
Forest Unit Subtotal		0	0	0	0		13	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1992-1997

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
OC	B&S						1,386	
	1-20						953	
	21-40						132	
	41-60						181	
	61-80						1,028	
	81-100						2,091	
	101-120						2,548	
	121+						9,020	
Forest Unit Subtotal		0	0	0	0		17,339	0
Total							492,468	

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Romeo Malette Forest

1997-2002

1991-2002								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pw	B&S						188	
	FTG-10							
	11-20							
	21-30							
	31-40							
	41-50							
	51-60							
	61-70						19	
	71-80						4	
	81-90						17	
	91-100							
	101-110						74	
	111-120						8	
	121-130						80	
	131-140						100	
	141-150						32	
	151-160						28	
	161-170							
	171-180							
	181-190							
191-200								
200+								
Forest Unit Subtotal		-	-	0	0		550	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

1997-2002

1997-2002								
Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PR	B&S						15	
	FTG-10							
	11-20							
	21-30							
	31-40							
	41-50							
	51-60							
	61-70							
	71-80							
	81-90						32	
	91-100							
	101-110							
	111-120						25	
	121-130							
	131-140						10	
	141-150							
	151-160							
	161-170							
	171-180							
	181-190							
191-200								
200+								
Forest Unit Subtotal		-	-	0	0		64	

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
PJ	B&S						14,929	
	FTG-10						62	
	11-20						4,167	
	21-30						1,049	
	31-40						714	
	41-50						2,152	
	51-60						1,210	
	61-70						3,023	
	71-80						9,587	
	81-90						7,812	
	91-100						2,952	
	101-110						674	
	111-120						192	
	121-130						150	
	131-140						201	
	141-150						31	
	151-160						40	
	161-170						18	
	171-180							
	181-190						9	
	191-200							
	200+							
Forest Unit Subtotal		-	-	0	0		48,973	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SP	B&S						9,638	
	FTG-10						10	
	11-20						2,456	
	21-30						168	
	31-40						312	
	41-50						3,156	
	51-60						3,922	
	61-70						4,275	
	71-80						2,784	
	81-90						4,278	
	91-100						3,745	
	101-110						4,439	
	111-120						2,170	
	121-130						2,576	
	131-140						1,267	
	141-150						485	
	151-160						1,135	
	161-170						757	
	171-180						4	
	181-190						99	
	191-200						99	
	200+							
Forest Unit Subtotal		-	-	0	0		47,785	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SB	B&S						61,399	
	FTG-10						34	
	11-20						1,051	
	21-30						528	
	31-40						1,652	
	41-50						4,399	
	51-60						11,096	
	61-70						18,617	
	71-80						20,955	
	81-90						24,784	
	91-100						14,022	
	101-110						15,931	
	111-120						12,178	
	121-130						13,963	
	131-140						7,309	
	141-150						518	
	151-160						4,815	
	161-170						4,941	
	171-180						485	
	181-190						75	
	191-200						148	
	200+							
Forest Unit Subtotal		-	-	0	0		218,900	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
SW	B&S						3,388	
	FTG-10						0	
	11-20						694	
	21-30						119	
	31-40						16	
	41-50						60	
	51-60						225	
	61-70						624	
	71-80						436	
	81-90						1,064	
	91-100						150	
	101-110						206	
	111-120						128	
	121-130						72	
	131-140						7	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						7	
	181-190						0	
	191-200						0	
	200+							
Forest Unit Subtotal		-	-	0	0		7,396	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
BF	B&S						1,013	
	FTG-10						0	
	11-20						77	
	21-30						35	
	31-40						113	
	41-50						704	
	51-60						865	
	61-70						948	
	71-80						234	
	81-90						117	
	91-100						136	
	101-110						52	
	111-120						0	
	121-130						0	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+						0	
Forest Unit Subtotal		-	-	0	0		4,294	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
CE	B&S						1,444	
	FTG-10						40	
	11-20						10	
	21-30						0	
	31-40						0	
	41-50						0	
	51-60						82	
	61-70						99	
	71-80						663	
	81-90						1,864	
	91-100						2,089	
	101-110						2,057	
	111-120						1,688	
	121-130						1,843	
	131-140						2,202	
	141-150						248	
	151-160						1,231	
	161-170						470	
	171-180						55	
	181-190						13	
	191-200						16	
	200+						3	
Forest Unit Subtotal		-	-	0	0		16,117	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

1991-2002		Protection Forest		Production Forest				
Forest Unit	Age Class	(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
L	B&S						61	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						11	
	51-60						157	
	61-70						309	
	71-80						629	
	81-90						530	
	91-100						192	
	101-110						44	
	111-120						19	
	121-130						58	
	131-140						87	
	141-150						25	
	151-160						43	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+							
Forest Unit Subtotal		-	-	0	0		2,164	

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

1991-2002		Protection Forest		Production Forest				
Forest Unit	Age Class	(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
OC	B&S						19	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						0	
	51-60						21	
	61-70						11	
	71-80						305	
	81-90						259	
	91-100						524	
	101-110						417	
	111-120						212	
	121-130						795	
	131-140						589	
	141-150						144	
	151-160						311	
	161-170						309	
	171-180						0	
	181-190						0	
	191-200						0	
200+								
Forest Unit Subtotal		-	-	0	0		3 916	

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ²)	Unavailable		Stage of Management	Available	
				(ha)	(m ²)		(ha)	(m ²)
A	B&S						0	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						0	
	51-60						42	
	61-70						19	
	71-80						5	
	81-90						0	
	91-100						0	
	101-110						0	
	111-120						0	
	121-130						0	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+						0	
Forest Unit Subtotal		-	-	0	0		67	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ²)	Unavailable		Stage of Management	Available	
				(ha)	(m ²)		(ha)	(m ²)
Ms	B&S						0	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						14	
	51-60						65	
	61-70						0	
	71-80						0	
	81-90						0	
	91-100						0	
	101-110						0	
	111-120						0	
	121-130						0	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+						0	
Forest Unit Subtotal		-	-	0	0		79	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
By	B&S						0	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						0	
	51-60						0	
	61-70						0	
	71-80						69	
	81-90						0	
	91-100						0	
	101-110						0	
	111-120						32	
	121-130						50	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+						0	
Forest Unit Subtotal		-	-	0	0		151	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Oh	B&S						0	
	FTG-10						0	
	11-20						0	
	21-30						0	
	31-40						0	
	41-50						0	
	51-60						0	
	61-70						41	
	71-80						63	
	81-90						53	
	91-100						34	
	101-110						59	
	111-120						0	
	121-130						70	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+						0	
Forest Unit Subtotal		-	-	0	0		320	0

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Po	B&S						11,605	
	FTG-10						647	
	11-20						3,871	
	21-30						2,068	
	31-40						1,238	
	41-50						3,575	
	51-60						5,154	
	61-70						5,875	
	71-80						11,899	
	81-90						10,888	
	91-100						5,839	
	101-110						2,023	
	111-120						680	
	121-130						102	
	131-140						121	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+							
Forest Unit Subtotal		-	-	0	0		65,589	0

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
1997-2002

Forest Unit	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bw	B&S						7,927	
	FTG-10						84	
	11-20						94	
	21-30						320	
	31-40						1,439	
	41-50						7,234	
	51-60						15,440	
	61-70						18,351	
	71-80						9,669	
	81-90						8,607	
	91-100						1,822	
	101-110						318	
	111-120						0	
	121-130						0	
	131-140						0	
	141-150						0	
	151-160						0	
	161-170						0	
	171-180						0	
	181-190						0	
	191-200						0	
	200+							
Forest Unit Subtotal		-	-	0	0		71,305	0
Total							497,693	

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest****2002-2007**

2001-2007

Working Group	Age Class	Protection Forest		Production Forest					
		(ha)	(m³)	Unavailable		Stage of Management	Available		
				(ha)	(m³)		(ha)	(m³)	
A	1-20							5	
	21-40							0	
	41-60							33	
	61-80							28	
	81-100							6	
	101-120								
	121-140								
	141-160								
	161-180								
	181-200								
	201-220								
	221-240								
Working Group Subtotal								72	
Total									

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest****2002-2007**

2002-2007								
Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
B	1-20	51					1,125	
	21-40						341	
	41-60						1,152	
	61-80						1,987	
	81-100						434	
	101-120						44	
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal		51					5,083	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Romeo Malette Forest

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Bw	1-20	28					13,457	
	21-40						1,192	
	41-60	221					15,035	
	61-80	243					29,265	
	81-100	23					12,276	
	101-120						2,153	
	121-140						211	
	141-160						76	
	161-180							
	181-200							
	201-220							
221-240								
Working Group Subtotal		515					73,665	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

Romeo Malette Forest

2002-2007

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
By	1-20						65	
	21-40							
	41-60							
	61-80						3	
	81-100							
	101-120							
	121-140						84	
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal							153	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
C/c	1-20						1,858	
	21-40						99	
	41-60						36	
	61-80	23					365	
	81-100						3,117	
	101-120	135					4,155	
	121-140	109					4,192	
	141-160	66					3,158	
	161-180	116					1,240	
	181-200						70	
	201-220						20	
	221-240							
Working Group Subtotal		450					18,310	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
I/c	1-20						23	
	21-40							
	41-60							
	61-80						97	
	81-100	60					64	
	101-120						60	
	121-140						71	
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal		60					315	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest****2002-2007**

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
L	1-20	2					132	
	21-40						1	
	41-60						171	
	61-80						704	
	81-100	36					885	
	101-120	59					143	
	121-140	17					97	
	141-160						128	
	161-180	26					1	
	181-200							
	201-220							
	221-240							
Working Group Subtotal		139					2,263	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest****2002-2007**

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Ms	1-20							
	21-40							
	41-60						14	
	61-80							
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal							14	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pj	1-20	9					23,244	
	21-40	8					5,284	
	41-60	12					3,136	
	61-80	82					5,786	
	81-100	127					10,956	
	101-120						1,331	
	121-140	10					321	
	141-160						139	
	161-180						19	
	181-200						9	
	201-220							
	221-240							
Working Group Subtotal		278					50,225	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Po	1-20	229					20,008	
	21-40	52					5,767	
	41-60	121					6,241	
	61-80	155					12,026	
	81-100						15,775	
	101-120	204					4,468	
	121-140	29					416	
	141-160						55	
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal		790					64,755	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pr	1-20						16	
	21-40							
	41-60							
	61-80							
	81-100						25	
	101-120							
	121-140							
	141-160						38	
	161-180							
	181-200							
	201-220							
	221-240							
Working Group Subtotal							79	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT**Romeo Malette Forest**

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Pw	1-20						76	
	21-40						7	
	41-60						0	
	61-80						20	
	81-100						0	
	101-120						24	
	121-140						201	
	141-160						88	
	161-180						29	
	181-200							
	201-220							
	221-240							
Working Group Subtotal							449	
Total								

Source:

TMPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
Romeo Malette Forest

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Sb	1-20	73					77,383	
	21-40						8,249	
	41-60	5					17,123	
	61-80	262					37,627	
	81-100	420					40,820	
	101-120	605					27,810	
	121-140	841					19,786	
	141-160	1,164					10,404	
	161-180	590					3,535	
	181-200						139	
	201-220						84	
	221-240							
Working Group Subtotal		3,958					242,957	
Total								

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT
Romeo Malette Forest

2002-2007

Working Group	Age Class	Protection Forest		Production Forest				
		(ha)	(m ³)	Unavailable		Stage of Management	Available	
				(ha)	(m ³)		(ha)	(m ³)
Sw	1-20	0					4,083	
	21-40	17					1,540	
	41-60						196	
	61-80						853	
	81-100						1,624	
	101-120						721	
	121-140	13					674	
	141-160	12					63	
	161-180							
	181-200							
	201-220							
	221-240	395						
Working Group Subtotal							9,754	
Total		6,239					468,094	

Source:

TPPM Table 4.8.2, 4.9

1996 FMPM Table FMP-2

**Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS (RPFO-7 and/or AR-7)
Romeo Malette Forest**

	Area Summary of all Forest Units (ha)					
	1992-1997		1997-2002		2002-2007	
	Planned	Actual	Planned	Actual	Planned	Actual
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest						
Total Uneven-Aged Management						
Even-Aged Management						
Natural Regeneration						
Clearcut	13,468	11,767	7,233	7,537	15,641	5,433
Careful Logging	6,194		8,011	1,900		
Strip Cut						
Seed Tree Cut						
Uniform Shelterwood Seed Cut						
Subtotal Natural	19,662	11,767	15,244	9,437	15,641	5,433
Artificial Regeneration						
Planting	8,068	7,946	6,203	7,286	7,535	8,032
Seeding	1,000	372				
direct						
with site preparation	1,000					80
Scarification						
Subtotal Artificial	10,068	8,318	6,203	7,286	7,535	8,112
Total Even-Aged Management	29,730	20,085	21,447	16,723	23,176	13,545
Total Regeneration						
Site Preparation						
Hand Scalp			1,030	871		
Mechanical	8,000	6,474	4,876	4,477	7,535	5,077
Chemical	600	1,106	800	473		187
Prescribed Burn	600					
Slash Piling						494
Slash Pile Burning						3,689
Total Site Preparation	9,200	7,580	6,706	5,821	7,535	9,357
Tending						
Cleaning						
manual		2	150	131		
chemical - ground		10	150	283	371	106
- aerial	10,000	10,822	14,808	9,266	4,843	8,776
mechanical		48			100	
prescribed burn						
Spacing, pre-commercial thinning, improvement cutting						
even-aged	1,000	284	500	309	500	
uneven-aged						
Cultivation						
Total Tending	11,000	11,164	15,648	9,989	5,819	8,982
Protection (Insect Pest Control)						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
Total Protection						

Source:

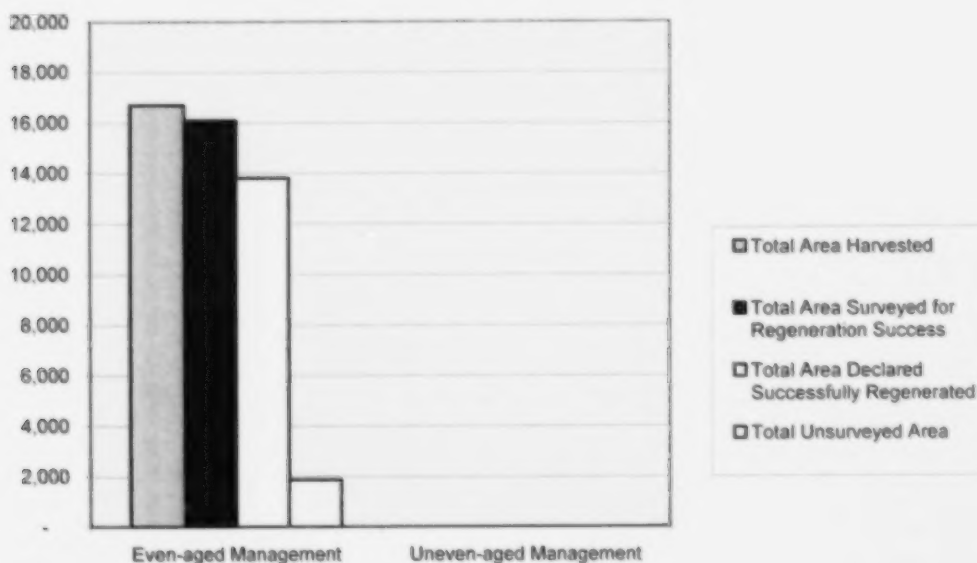
planned: TMPM Table 4.19, FMPM Table FMP-25

actual: TMPM Table 4.4, 1996 FMPM Table RPFO-7 and annual reports, 2004 FMPM AR-7

Actual hectares for natural regeneration for the 2002-2007 period represent 4 years of annual reporting. The complete number for the five year period was unavailable at the time of writing this report.

**Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units
Romeo Malette Forest**

	AREA IN HECTARES (All Forest Units Combined)	AREA IN HECTARES (All Forest Units Combined)
	Even-aged Management	Uneven-aged Management
Total Area Harvested	16,685	-
Total Area Surveyed for Regeneration Success	16,081	-
Total Unsurveyed Area	1,873	-
Total Area Declared Successfully Regenerated	13,800	-
Total Area Surveyed Not Successfully Regenerated	-	-
NSR	2,281	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	85.8%	



Source:

total area harvested: TPM Table 4.1, FPM Table RPFO-2, or annual reports

survey results: TPM Table 4.7, 1996 FPM Table RPFO-8, RPFO-9, 2004 FPM AR-7, AR-14, AR-16 and silviculture records

Appendix B

Audit Team Members and Qualifications

Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
Mr. Peter Higgelke	Lead Auditor	- Overall audit coordination - Oversee activities of audit team members - Review requirements and contractual obligations - Lead review of achievement of management objectives and forest sustainability - Lead audit report preparation	R.P.F. M.Sc.F; 27 years forestry experience in Ontario, Quebec, and Germany; Lead Auditor for one Independent Forest Audit, Wildlife Auditor on one Forest Management Agreement Review and six Independent Forest Audits, and as a Forestry Auditor on five previous Independent Forest Audits.
Mr. Ben Newman	Forest Management Planning and First Nations Auditor	- Planning requirements related to public participation and planning team activities - Assist in assessment of achievement of management objectives and forest sustainability - Review Aboriginal consultation and benefits from forest management	R.P.F.; 12 years of forestry and resource management experience in Ontario and BC; Audit Secretariat and/or Planning Auditor on three previous Independent Forest Audits.
Ms. Gabriele Aleksa	Silviculture Operations Auditor	- Assess silvicultural planning and operations - Assist in assessment of achievement of management objectives and forest sustainability	R.P.F.; 26 years experience in natural resource management; resource stewardship agreement (RSA) consultant; audited private land harvesting practices for litigation purposes; auditor on two previous Independent Forest Audits.
Mr. Brad Chaulk	Harvesting Operations Auditor	- Assess harvest planning and implementation - Review compliance program planning and implementation - Assist in assessment of achievement of management objectives and forest sustainability	15 years of forestry experience including forest management and operational planning; auditor on ten previous Independent Forest Audits.
Mr. John McNicol	Wildlife/Ecology Auditor	- Review and inspect AOC documentation and practices - Review and inspect aspects of forest management related to environmental practices, values and wildlife protection - Review access planning and implementation - Assist in assessment of achievement of management objectives and forest sustainability	M.Sc. Zoology; 34 years forestry experience; co-authored many of the guidelines currently used in forest management planning; auditor or technical advisor on nine Independent Forest Audits.
Mr. Keith Hautala	Modeling (SFMM) Auditor	- Review the long-term strategic planning in the SFMM cases for the 2000-2005 FMP - Assist in assessment of achievement of management objectives and forest sustainability	Nine years of forestry experience in Ontario; auditor on five Independent Forest Audits as the modeling auditor, and three Independent Forest Audits as secretariat.

Appendix C

Independent Forest Audit Guiding Principles

Independent Forest Audit Guiding Principles

1. Commitment

Commitment is reflected in vision, mission and policy statements of the company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

2. Public Participation

The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit.

3. Forest Management Planning

The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.

4. Plan Implementation

Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.

5. System Support

System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.

6. Monitoring

The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.

7. Achievement of the Management Objectives and Forest Sustainability

Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.

8. Contractual Obligations

The licensee must comply with the specific licence requirements.

Appendix D
List of Acronyms

List of Acronyms

AHA	Available Harvest Area	MAFA	Moose Aquatic Feeding Area
AOC	Areas of Concern	MNR	Ministry of Natural Resources
AR	Annual Report	MOE	Ministry of Environment
AWS	Annual Work Schedules	NDPEG	Forest Management Guide for Natural Disturbance Pattern Emulation
B&S	Barren and scattered	NESMA	Northeast Seed Management Association
CFMP	Contingency Forest Management Plan	NRVIS	Natural Resource Values Information System
CFSa	Crown Forest Sustainability Act	NSR	Not Sufficiently Regenerated
CLAAG	Careful Logging Around Advanced Growth	OMNR	Ontario Ministry of Natural Resources
EMS	Environmental Management System	OLL	Ontario's Living Legacy Land Use Strategy
FEC	Forest Ecosystem Classification	OSB	Oriented Strandboard
FFC	Forestry Futures Committee	PFSF	Policy Framework for Sustainable Forests
FIM	Forest Information Manual	PSP	Permanent Sample Plot
FMP	Forest Management Plan	RMF	Romeo Malette Forest
FMPM	Forest Management Planning Manual	R.P.F.	Registered Professional Forester
FOCIS	Forest Operations Compliance Inspection System	RPFO	Report of Past Forest Operations
FOIP	Forest Operations Information Program	RSA	Resource Stewardship Agreement
FOP	Forest Operation Prescription	SEIM	Socio-Economic Impact Model
FRI	Forest Resource Inventory	SEV	Statement of Environmental Values
FSC	Forest Stewardship Council	SFL	Sustainable Forest Licence
FTG	Free-to-Grow	SFM	Sustainable Forest Management
GIS	Geographic Information System	SFMM	Strategic Forest Management Model
GPS	Global Positioning System	SGR	Silviculture Ground Rule
HPA	High Priority Aspect	SMA	Selected Management Alternative
IFA	Independent Forest Audit	SPF	Spruce Pine Fir
IFAPP	Independent Forest Audit Process and Protocol	STP	Silvicultural Treatment Package
KBM	KBM Forestry Consultants Inc	TAR	Trend Analysis Report
LCC	Local Citizens Committee	TMP	Timber Management Plan

Appendix E

Summary of Input to the Audit Process

Summary of Input to the Audit Process

General Public/Other Stakeholders

An advertisement was placed in the *Timmins Times* and *Wawatay* newspapers providing notice of the audit and offering the public an opportunity for input to the audit process. The notice directed the public to contact the Romeo Malette Forest LCC Chairman or the audit administrator with any comments regarding forest management activities on the Romeo Malette Forest.

Public Survey

KBM prepared a one-page public survey that was distributed to all organizations and to a random sample of forty percent of the individuals listed in the FMP mailing list. In total, 174 surveys were sent out. In addition, the public notice was posted on and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. Eleven responses were received and are summarized in the table below.

Responses to Public Survey

Respondent	Comment or Concern	Audit Team Response
1	- concerned with excessive number of roads put in to access the cut block of Hwy 144 and that some of the roads had not been de-activated when the harvest was completed. - concerned that cutovers left to regenerate naturally will not bring the forest back to its original composition - overall, feels the Romeo Malette Forest is poorly managed	- None necessary - Natural regeneration considered in audit - Audit team disagrees
2	concerned with Crown Land campers taking down trees with no scavenger permit and leaving a mess on the road	Not in scope
3	good tree planting in Penhorwood Twp.	Silviculture considered in audit
4	- concerned that slash piles and branches are left after cutting is done and wants to know why it is not utilized (perhaps for fueling co-generation plants) - believes MNR should look into threat of insects and their effect on trees	- Slash management considered in audit - None necessary
5	- has a Resource Stewardship Agreement with Tembec - good working relationship with Company	None necessary
6	- leases 1/3 of area mapped out for bear harvesting - was upset with lack of notice prior to work beginning on Kenogamissi Falls Bridge	None necessary
7	- lives in the area and believes that reforestation is minimal - roads were in terrible shape	- Silviculture considered in audit - Road maintenance considered in audit for funding agreement roads
8	- has contacted forest managers regarding plugged converts and bridge repairs - has been satisfied with the response	None necessary
9	- concerned that area southwest of Horwood Lakes is taking a long time to replant - does not believe company should be allowed to move logs out of province	- Silviculture considered in audit - Not in scope
10	None	None necessary
11	- concerned that slash piles were left behind on Block 29 - concerned with failure to cut Block 24 when allocated - did not maintain Musgrove Road when performing logging operations	- Slash management considered in audit - None necessary - Road maintenance considered in audit for funding agreement roads

First Nations

An audit notice and invitation was sent to the following First Nation and Aboriginal groups:

- Mattagami First Nation
- Matachewan first Nation
- Wahgoshig First Nation
- Taykwa Tagamou Nation
- Flying Post Reserve

Local Citizens Committee

During the site visit, the audit team interviewed members of the Romeo Malette Forest LCC, and members of the LCC were invited to participate on the field site visits. An LCC member participated in the opening meeting, and two attended the closing meeting. These meetings provided an opportunity for members to express their concerns and provide input for the audit team's consideration. Overall, most LCC members felt the LCC was effective and that members were able to make a significant contribution to the forest management planning process.

Overlapping Licensees, Contractors and Commitment Holders

The one-page public survey described in the previous section was sent to overlapping licence holders, contractors and commitment holders that were listed on the FMP mailing list.. Members of the audit team also conducted interviews with representatives of the following companies:

- Timmins Forest Products
- Grant Forest Products Inc.
- Norbord Industries Inc.
- Columbia Forest Products

SFL Holder

Tembec staff provided the majority of the input into the audit. Methods of input included: providing background documentation such as the forest management plan, the Trend Analysis Report, maps, meeting minutes, and guiding of field inspections. The audit team recognizes and appreciates that the staff made great efforts to assemble the field binders and organize many aspects of the audit. Numerous interviews were supported with extensive discussion in the field with Tembec staff. These discussions formed a significant basis for understanding forest management on the Romeo Malette Forest.

Ministry of Natural Resources

MNR staff provided significant input into the audit through interviews and preparation of documentation. Representatives from the Timmins office were present at the pre-audit meeting, and opening and closing meetings, as well as the field site visits.

Appendix F
Public Survey

**KBM FORESTRY CONSULTANTS INC.
2007 INDEPENDENT FOREST AUDIT
PUBLIC SURVEY**



Every five years, as part of the Province's responsibility for resource management in Ontario, the Ministry of Natural Resources (MNR) contracts firms to evaluate forest management activities on Crown lands. KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been engaged by the MNR this year to conduct an independent forest audit of the Romeo Malette Forest for the period 2002-2007.

As part of our evaluation, we would appreciate your input as a member of the public with an interest in forest management on the Romeo Malette Forest. If you have comments related to forestry activities during the five-year period April 1, 2002 to March 31, 2007, please complete and submit this form (please see back of sheet for more information on the audit process).

KBM provides this opportunity to comment on the Romeo Malette Forest audit, under the authority of Ontario Regulation 160/04 made under the Crown Forest Sustainability Act, 1994. Any personal information provided will be used solely by the audit team as input to the Romeo Malette Forest Independent Forest Audit. Any questions regarding the collection, use, and retention of the personal information can be directed to Peter Higgelke, Lead Auditor at 807-345-5445 ext. 231 (email: higgelke@kbm.on.ca) or to the company address indicated below.

Name:
(optional)

Tel. and/or email:
(optional)

1. What is your interest in forest management on the Romeo Malette Forest?

Recreation ☐
Employment (forestry, tourism, etc.) ☐
Conservation ☐
Other: _____

2. Can you identify any specific locations or activities on the Romeo Malette Forest that illustrate good OR poor management practices, and that the audit team should be aware of in conducting their evaluation? Please provide details.

3. Have you ever contacted forest managers with comments or concerns during the 2002-2007 audit period? (e.g. local Ministry of Natural Resources, Tembec Industries Inc.) ☐ Yes ☐ No

4. If yes, were you satisfied with the response? ☐ Yes ☐ No

5. Feel free to add any additional comments (use additional sheet if required).

6. Please indicate if we may contact you for more information. ☐ Yes ☐ No
(If Yes ensure that you have provided your contact information above.)

Please **mail, email, or fax** the completed survey (Attention: Sonia Colombo) to the address/fax number below by Monday **August 10, 2007**.

The survey can also be accessed through our website, located at www.kbm.on.ca

Although we cannot respond to everyone, we do take into consideration all comments received.

THANK YOU IN ADVANCE FOR YOUR INPUT.

KBM Forestry Consultants Inc.
scolombo@kbm.on.ca

349 Mooney Avenue
Thunder Bay, ON P7B 5L5
<http://www.kbm.on.ca>

Tel: (807) 345-5445 ext. 234
Fax: (807) 345-3440

INDEPENDENT FOREST AUDIT Romeo Malette Forest

KBM Forestry Consultants Inc. has been retained by the Ministry of Natural Resources (MNR) to conduct an Independent Forest Audit, consistent with the Crown Forestry Sustainability Act, on the management of the Romeo Malette Forest.

The audit covers the April 1, 2002 to March 31, 2007 operating period. You are invited to comment on the forest management activities on the Romeo Malette Forest for this period of time. Please mail, email, or fax this form to:

Sonia Colombo
KBM Forestry Consultants Inc.
349 Mooney Ave., Thunder Bay, ON P7B 5L5
scolombo@kbn.on.ca
Tel: (807) 345-5445 ext. 234
Fax: (807) 345-3440
Toll-Free: 1-800-465-3001

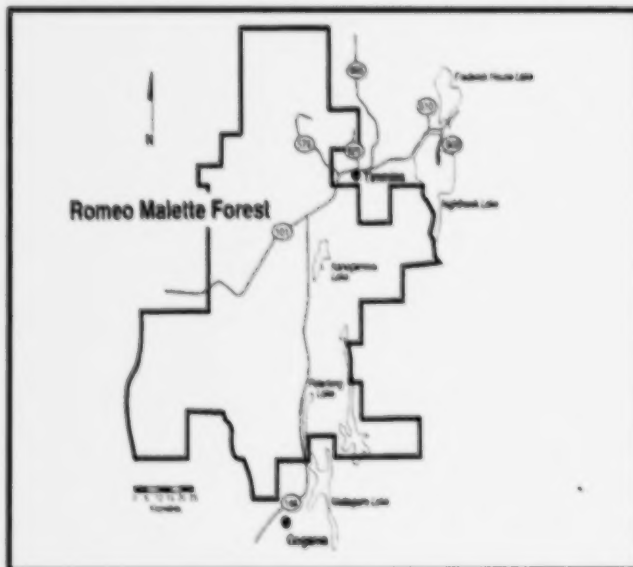
(All correspondence sent to KBM is confidential).

Alternatively, comments can be made directly to the Local Citizens Committee Chairperson:

Bill Russell, Chair
Romeo Malette Forest Local Citizens' Committee
c/o Ministry of Natural Resources
P.O. Bag 3090
South Porcupine, ON P0N 1H0
Email: russdee@ntl.sympatico.ca

(The privacy of any information given to the LCC may not necessarily be protected).

Comments must be received by **Friday, August 10, 2007.**



Purpose of the Independent Forest Audit

The Purpose of the audit is to assess:

- compliance with the *Crown Forest Sustainability Act*,
- compliance with the Forest Management Planning Process,
- a comparison of planned versus actual forest management activities,
- the effectiveness of forest management activities in achieving audit criteria and management objectives,
- assess the effectiveness of previous audit action plans, and
- where applicable, a licensee's compliance with the terms and conditions of the Sustainable Forest Licence.

The six-member audit team will evaluate forest management planning and practices such as harvest operations, forest renewal activities, road construction and maintenance as well as opportunities for public input and First Nations consultation. The main objectives of the audit are to assess compliance with provincial laws and regulations as well as comment on the effectiveness and sustainability of forestry activities on the management unit.

In addition, the independent forest audit provides an opportunity to improve Crown land management in Ontario through adaptive management. The audits are conducted by consultants that are independent of the Ministry of Natural Resources and the companies being audited, and firms are selected in an arms-length process by the Forestry Futures Committee of Ontario.

Appendix G

Public Notification

Romeo Malette FOREST INDEPENDENT FOREST AUDIT

KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been retained by the Ontario Ministry of Natural Resources to conduct an Independent Forest Audit, consistent with the Crown Forest Sustainability Act on the management of the Romeo Malette Forest. The purpose of the audit is to assess forest management activities within the Romeo Malette Forest during the five-year audit period from April 1, 2002 to March 31, 2007. Specifically:

- compliance with the Crown Forest Sustainability Act;
- compliance with the Forest Management Planning process;
- a comparison of planned versus actual forest management activities;
- the effectiveness of forest management activities;
- the effectiveness of previous audit action plans; &
- compliance with the terms and conditions of the Sustainable Forest Licence.

You are invited to comment on forest operations on the Romeo Malette Forest for this period of time. Please provide your comments by Friday, **AUGUST 10, 2007** directly to the Local Citizens Committee:

Romeo Malette Forest LCC Chair

Bill Russell

Email: russdee@ntl.sympatico.ca

The privacy of information given to the LCC may not necessarily be protected.

Alternatively, comments can be sent directly to:

Sonia Colombo

KBM Forestry Consultants Inc.

349 Mooney Avenue

Thunder Bay, ON P7B 5L5

Tel: 807-345-5445 ext. 234

Fax: 807-345-3440

Toll Free: 1-800-465-3001

Email: scolombo@kbm.on.ca

All correspondence sent to KBM is strictly confidential.

For more information or to download and complete our public audit survey please visit:

www.kbm.on.ca

